Final Report On Excavations In Advance Of Water Main Relining At Wroxeter Roman City, Shropshire

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FINAL REPORT ON EXCAVATIONS IN ADVANCE OF WATER MAIN RELINING AT WROXETER ROMAN CITY, SHROPSHIRE

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with contributions
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SUMMARY
A programme of archaeological work was carried out at Wroxeter in advance of water main relining by Severn Trent Water Ltd who funded the work. A total of 24 holes was excavated at specified locations and in most cases to set dimensions of 2m by 1.7m in size and *c* 1.5m deep. The degree and nature of activity varied in the lining holes with some showing only road surfaces or limited evidence for human settlement. In two holes, evidence of buildings was found and in one of these (lining hole 12) the evidence had a very early starting date, earlier or contemporary with the legionary fortress established in *c* AD 57.

1: BACKGROUND

1.1 Introduction
As part of the on-going programme of maintenance and improvements carried out by Severn Trent Water Ltd., the water main (Atcham DMA711) that runs across Wroxeter from north to south was re-lined using a concrete grouting system. As a condition of scheduled monument consent, the work was subject to a desk-top assessment of the archaeological impact of the works on the monument (SAM 32) (White 1998). The recommendations, timetable of archaeological works and costings established in that document formed the framework of the work described here. The initial programme of work comprised the excavation by hand or machine of 19 lining pits. Due to technical difficulties, a further variation was agreed upon allowing the excavation of another four lining holes and a machine-excavated trench. The work was carried out in a single 8-week period from mid October to mid December 1999.

1.2 Methodology
The methodology of the excavation was formulated at the desk-top assessment stage. This highlighted the sensitive nature of the site and the probability of discovering substantial remains of Roman date (White 1998). Procedures were outlined in case significant structures or discoveries were made that might require a variation in the work procedures and location of lining holes.

It must be stressed from the outset that the location and size of the interventions was determined on engineering grounds and not with reference to the archaeology (Fig. 1). These lining holes thus represent a random sample of the deposits across the Roman city. Each lining hole was to be 2m by 1.7m in size and it was agreed that the depth of each would be determined by the depth of the main itself so that the base of the intervention was to be at least 0.3m below the base of the pipe. The depth was to be increased where archaeology still survived so that a substantial timber lining might be put in place to protect the surviving remains during the relining process. The walls of the lining holes were to be lined with a glass fibre matting once full recording of the lining hole had been completed. Once archaeological work had been finished, further excavation was carried out within the line of the existing pipe trench to allow for the

entry of the plant hoses and cables (Fig. 2). After relining had been carried out, the lining holes were backfilled. The fill varied according to the situation of the lining hole so that those in open land were backfilled with the spoil that had come out of them, while those excavated in the roads or verges were reinstated in accordance with Highways regulations using sterile broken stone compacted in situ and capped with tarmac.

Recording was by pro-forma context cards that were either for positive contexts ('layers') or negative contexts. Context numbers were allocated for each lining hole in 500 or 100 blocks for positive and negative numbers respectively, starting at 1000 for positive contexts and F1 for negative contexts. Thus lining hole 1 was allocated 1000-1499 and F1-F99, lining hole 2 had 1500-1999 and F100-199, etc. Lining holes that were interpolated between existing lining holes were given suffix letters (e.g. 11A) and allocated sub-sets of appropriate numbers (e.g. 6100, F1050, *et seq.*). Plans were drawn at a scale of 1:20 or 1:50 as appropriate and sections at a scale of 1:10 or 1:20. Monochrome photographs and colour transparencies were taken of the excavation as it progressed.

2: THE FIELDWORK

2.1 Excavation

The location of the lining holes determined to a large extent the character of the remains recovered. Those lining holes located within modern roads that coincided with roads of Roman date tended to have sequences entirely composed of road surfaces (lining holes 7, 8, 8D, 9, 10, 11). The one exception to this rule, lining hole 11A, was located within a section of the modern road that ran on a different alignment from that of the Roman period and consequently produced a number of possible archaeological features that related to the archaeology within the adjacent lining hole 12. Lining holes 17 and 18 at the southern end of the series of holes, and 19 which lay at the very beginning of the series, had no archaeological sequences of importance as these lay beyond the town defences, although there is a possibility that 19 had contained a cremation burial. In addition lining hole 3, a trench cut across the Bell Brook valley by machine, also produced nothing of archaeological interest. The remaining interventions, lining holes 1, 2, 4, 5, 6, 8C, 12, 12A, 13, 14, 15 and 16 were located within fields or verges. All produced archaeological sequences of varying complexity and date. These interventions will be discussed in detail whilst the remaining lining holes will be more summararily discussed.

Lining Hole 1 (Fig. 1)

Lining hole 1 was located on the eastern side of Insula 41 and about 50m south of the northern ramparts. Geophysical evidence in this area is largely non-structural with merely a number of pits being detected. Geophysical evidence is lacking for the immediate vicinity of the lining hole, probably due to the interference of the metal fence located within the hedge immediately adjacent to the excavation. No previous work is known in the vicinity.

Evidence for three phases was detected.

Phase X: Early Roman (later 1st century) (Fig. 7-8)
The earliest phase consisted of a very large pit whose dimensions exceeded those of the intervention so that it must have been at least 2m in diameter. The depth of the pit was not fully determined: the excavated portion was at least 1m deep and augering of the base showed that probably at least another 0.25m remained to be excavated. The fills were variable but consisted largely of either sandy layers (1013, 1016, 1018, 1020,1022, 1026, 1027) or predominantly charcoal-rich layers (1014, 1017, 1019, 1021, 1025) that tended to be deposited alternately within the upper levels of the feature. Towards the base of the pit, the layers varied slightly and some were layered almost horizontally so as to give the appearance of a trampled surface or floor within the feature. These contexts seemed to be limited to the western side of the pit and included a thin layer of compact, chesnut coloured clay (1024) and a layer of pebbles bonded by iron panning (1023). It is possible that these contexts represent a step created within this large feature to allow access into it. The upper fills were more obviously tip layers designed to fill in the feature. The earliest layer within the pit was a clean, bright red sand without pebbles (1028) that would normally be considered to be the natural subsoil. This may indeed be the case but it should be noted that a large sandstone ashlar (1029) lay in the north-west corner of the trench and since this clearly sat within 1028 it suggests that the layer was redeposited natural. The function of the sandstone ashlar was not apparent: its minimum dimensions were 0.4 x 0.25 x 0.16m and the block was laid horizontally within the feature. It presumably acted as a support for something contained within the pit but it is not possible to speculate further on its function.

The overall function of the pit itself is also unclear. There is no reason to suppose that the fill of the pit necessarily reflected the activities carried out within it, and in any case the fills did not really supply any information on what processes had produced them, other than that it involved burning. The structural evidence within the pit suggested that the feature had remained open for a period and that access was required from a step on the western side. Further, there was a substantial support for a structure within the north-west corner of the pit and this too indicates that the pit was linked to an industrial process and was not for the disposal of refuse. The geophyscial evidence for this part of the town has highlighted a considerable number of pits on both sides of the Bell Brook of similar dimensions to that seen in trench 1 (most notably in insulae 45, 48 and 51). It has been speculated that these were for some industrial activity, perhaps involving water, such as tanning or fulling (White and Barker 1998, 79). There was no evidence in this pit for water-related industrial activity, and the sandy base and sides of the cut would suggest that in this case such activity would be inappropriate. Nonetheless the dimensions of the feature accord well with those known from the geophysical evidence and offer a first opportunity for understanding the scale and processes evidenced by these features.

Phase Y Roman (end 1st century-2nd century) (Fig. 7-8)
Once the pit had been filled, the function of the site changed radically with the construction of a substantial building. Only the corner of this structure was found but its total depth was about 0.5m. The construction trench (F5) had been cut into the upper fill of the pit on the north-western side. This was initially filled with freshly quarried angular sandstone blocks up to 0.2m in size mixed with lumps of clean red clay (1015). Overlying this was a layer 0.2m thick of crushed red sandstone, sand,

mortar and stone, including blocks of Hoar Edge Grit sandstone and cobbles (1012). Sealing this was a thin layer of clean red clay (1009) that formed a foundation for an irregular layer of broken stone and cobble 0.25m deep (1011) that was laid with some care to form a faced wall. This layer, along with its bonding layer of clean red clay (1003), formed a dwarf wall that projected above the level of an adjacent, and presumably contemporary, cobble surface (1008). The wall had been severely truncated on the east side by the modern water main trench so that only 0.12m of its width survived there. Where the width was fully preserved, on the south side, the wall width was 0.75m. Since there was no sign of the wall to the east of the water main trench, it must be assumed that the wall turned north, along the line of the main itself, and that the bulk of the building thus lies to the north and west of the lining hole. In the extreme north-west corner of the trench, a possible cut was detected in the angle of the wall (F2). This was filled with sandstone rubble and silt (1004). It was not clear whether this context represented a posthole or other structural feature within the building since so little of it was seen in excavation. On the eastern side of the water main, only one context may be associated with this activity: a cobbled surface (1010) seen in the north-east corner of the trench. This was presumably contemporary with the cobbed surface 1008 that was associated with the dwarf wall, and indeed may have been part of the same surface. Presumably both contexts represent a path or surface passing to the south of the building and perhaps separating it from its neighbour, as well as allowing access to the back of the plot. Similar arrangements are seen in the houses excavated by Bushe-Fox in insula 8, and are implied by the geophysics for insulae 18-21 (Gaffney, White and Buteux, forthcoming b).

Parallels for the dwarf wall built in alternate layers of stone and clay are also readily forthcoming from the town. A good example was seen in the houses excavated on the western side of insula 2 during Philip Barker's excavations (1997, 156 & 169) and they are also known in Post Office excavations in the same insula (Barker and Perry, forthcoming). Barker also excavated similar walls in his excavations in insula 6 (Barker 1968). Clay and cobble layers were also used in the foundation levels of the temple excavated by Bushe-Fox (1914, 3). It must be assumed that these clay and cobble dwarf walls were the standard mode of construction for the more modest buildings in the town, but do not represent the houses of the poor. On analogy with medieval architecture, such dwarf walls may be considered to be the foundations of substantial timber-framed buildings, even if the resulting rendered building did not look like the medieval buildings familiar from Shrewsbury (Goodburn 1991). Timber architecture could be as impressive as stone-built houses and the implication of this structure at the edge of the Roman town indicates that this part of the town was a desirable area to live in for the relatively well-off. Having said that, it is also apparent that the most prestigious areas of housing were located within the centre of the town or on its western periphery. Perhaps the attraction of this particular spot was its proximity to the north gate, about 50m away and its access to the frontage of one of the main thoroughfares of the city. The existence of this building also implies that the industrial nature of this quarter changed, perhaps when the rampart was added to the town within the second century.

Phase Z Modern

Evidence for this phase was limited to root disturbance in the eastern half of the trench associated with the adjacent hedge and the cut for the water main pipe. A layer of topsoil 0.3m thick overall sealed the cut and the surviving archaeology.

Lining hole 2 (Fig. 3)

Lining hole 2 was located on the east side of insula 41, about 10m to the north of the Bell Brook. Topgraphically, it lies at the crest of the Bell Brook valley although the drop in levels was not more than about 3m. Geophysical evidence here is limited to amorphous areas of disturbance, and in any case the proximity of two metal fences here will have interfered with the instruments. No previous excavations are known in this area. Two phases were detected.

Phase Y: Roman (Fig. 9)

Evidence in this phase was limited to a sequence of cobbled surfaces that were presumed to be roads although an alternative suggestion is offered below. At the base of the sequence was a layer of decayed red sandstone that may well have represented the natural bedrock in a rotted condition (1510). Alternatively, this layer may have represented a rammed foundation for the overlying cobbled surface (1509) that was an extremely hard layer of densely packed small stones held together by natural iron panning. Only a small part of this surface could be removed to expose the underlying sandstone and the remainder of the layer was left in place. Sealing this was another densely packed layer of small and large stones bonded by iron panning that covered the whole base of the trench (1508). Sealing this was a layer of large and small stone set in a yellow-brown sandy clay matrix (1507). A slight camber to this surface was detected. The fourth and last of these stone and cobble surfaces, 1506, had been damaged by the cut for the water main and did not completely cover the surface of the trench. This layer was characterised by some very large stones (up to 0.4m in size) that were incorporated within its surface. Some of these boulders had been removed during the cutting of the main and had been redeposited in its fill. The uneven surface of this layer was sealed by a sandy silt deposit 0.3m deep that presumably represents an intermingling of a natural accumulation on the surface with the overlying topsoil (1502, 1503).

Whilst there is little doubt that these four surfaces were in effect road metallings, it is uncertain whether the Watling Street extended this far west. Certainly, lining hole 2 lay at the same relative distance from the modern road as lining hole 1 and there had been no sign in that intervention of major road surfaces. Of course, the width of the road may well have varied, particularly north and south of the Bell Brook. The width of this same road between the forum and baths, for example, is known to be about 20m, but this is appropriate for what was, after all, the town centre. An increased width here would be necessary both for the greater volume of traffic and to impress those visiting the town (Laurence 1999). Such a width would surely be inappropriate for the northern stretch of this road from the north gate to the Bell Brook. One theory that may account for the existence of these metalled surfaces is that they were required to allow traffic to cross the Bell Brook. Today, the modern road is carried over this stream on a small bridge but there is no sign of a Roman predecessor to it. The Bell Brook today is relatively deep and fast-flowing, but is by no means impassible and wheeled traffic or riders will not have been impeded at all in their progress. In Roman times, the damming of the stream to create a head of water for the town's aqueduct will have further reduced the flow (Pocock 1936) so that pedestrians too will have been able to cross the stream relatively easily. Bearing this in mind, it may be that the metallings in lining hole 2 should be viewed as a paved area on the banks of the stream to enable wheeled traffic especially to climb out of the stream and not get bogged down on the

wet banks. This would explain too the increased width of the road implied by these surfaces since a natural holloway will have rapidly formed here as soon as the road came into use and the banks got broken down. The paving of the banks may thus be a measure to prevent further erosion.

Phase Z Modern
The evidence of this phase was limited to the cut for the water main and, on the east side to the cuts for two modern postholes. The lower of these was lined with complete glass bottles while the upper posthole, which directly overlay it, was lined with broken ashlar blocks. These presumably represented evidence for the predecessors of the existing fence posts on the site. These contexts were contained within the topsoil that was 0.4m deep overall.

Lining Hole 4 (Fig. 3)
Lining hole 4 was also located on the eastern side of insula 41 about 20m south of the Bell Brook. The only known archaeological excavation within this area is an unlocated trench dug by Dr J. Houghton in the early 1960s. This collapsed onto the excavator and his assistant, J. Lawson, so the precise position of this trench is unknown but it is thought to lie about 100m west of lining hole 4.

The intervening 30m between lining holes 2 and 4 was linked by a machine dug trench, lining hole 3, necessitated to overcome the technical problems of crossing the Bell Brook (it proved impossible to re-line the old main and a new plastic section of the main had to be inserted). No archaeological activity was detected in the sides of this cutting since the main cut was contained entirely within the existing footprint of the water main trench. The old section of the cast iron main was left in situ.

Two phases were detected within lining hole 4.

Phase Y: Roman (Fig. 10)
The majority of the contexts in this phase consisted of deep layers of clay silt that perhaps represented naturally deposited colluvial layers associated with the Bell Brook nearby. At the base of the sequence were two silty sandy layers, 2510 to the west and 2509 to the east of the cut for the water main, that were 0.2m deep. Set within the upper surface of both contexts were angular sandstone blocks up to 0.3m in size that were confined to the northern end of the trench (F304). The similar arrangement of these blocks strongly suggest that they are part of the same feature whose extent must therefore be at least 1.5m east – west by 1m north – south. Cut into the eastern half of this area of stone was an irregularly oval feature, F303, that was filled with silt and small stones. The function of this feature in relation to the stones was unclear. Sealing this activity on the east side were further layers of silty sand (2507 and 2506), whose combined depths were 0.4m. On the western side of the trench, silt layers of similar depth incorporated another area of sandstone rubble 0.5m x 0.5m in extent (2503) that had a more structural appearance. Again, the function of this rubble was not clear. Certainly, the surfaces of the stones were unworn and these patches cannot therefore be considered as areas of paving associated with the Bell Brook.

In general, this intervention produced little information on the activities within this part of the town. The lack of structural activity is somewhat surprising in the light of the stratigraphic sequences seen in lining holes 1, 2 and 5. The sequence as recovered

appeared to show that this part of the valley was subject to colluvial deposition, although this presumably relates more to the medieval period than the Roman since the geophysical survey indicated the survival of ridge and furrow within the same valley further to the west in insulae 46 and 49. Certainly, the evidence suggests that this part of the town was an open area within the Roman period, a phenomenon that may perhaps be attributable to the proximity of the Bell Brook and its waterlogged subsoil.

Phase Z: Modern
Evidence in this phase was limited to the cutting of the water main and the accumulation of a further 0.4m of topsoil and colluvium.

Lining Hole 5 (Fig. 3)
Lining hole 5 was located on the eastern side of insula 40 and about 110m south of lining hole 4. There are no known interventions in the vicinity. The geophysical evidence for the area around the lining hole shows a number of small pits scattered across the insula but no obvious structures. The asymmetric location of the pipe trench within the trench meant that more archaeology was visible on the east side than on the west. Two phases were detected in excavation.

Phase Y: Roman (Fig. 11, 13)
This phase was a relatively complex stratigraphic sequence with an overall depth of 1.2m. It may perhaps be divided into three discrete sub-phases, although the activity represented throughout was rather similar, consisting of thick dumps of sandy soil into which discrete pits and other features had been cut.

Sub-phase Y1
The lowest level, 3024, was a overall layer of light yellowish sandy silt that was 0.06m deep. This appeared to overlie the natural subsoil, although this level could not be fully examined since this would have exceeded the required depth of excavation required by the excavation specification. Sealing this was a mixed layer composed of two distinct elements: a black organic lens 0.08m deep and at least 1.4 x 0.5m in extent (3023) that was contained with a dump of light brown silty sand that had an overall depth of 0.3m (3021). On the northern side of the trench, an irregular shallow cut (F408) had been made into this mixed dump which had two distinct fills. Although it was not possible to trace the full dimensions of this feature, its minimum extent was 1.65 x 0.9m. The earliest was a layer of greenish silty material that was perhaps decayed cess (3020). This was largely sealed by a clean, chalky layer (3019). These layers may well represent human or animal waste that had been sealed by a clean layer of slaked lime to neutralise it. Cut into this feature was a small, discrete pit, F407, that was 0.5 x 0.45m in size and 0.22m deep. It contained two fills: a dark sandy clay (3022) and a light brown sand (3018). A number of sandstone blocks lay on the north side of this feature and this may represent some sort of packing for a post contained within this cut. However, these stones did not appear to be arranged around a void and they may merely be coincidental to the feature.

Sub-phase Y2 (Fig. 12, 13)
This phase consisted of another mixed levelling dump composed largely of clean sandy silt or silty clay spreads (3013, 3017) with an overall depth of 0.34m. Set within the surface of this dump were other thinner discrete dumps of similar material. These included a patchy layer of grey silty clay (3016), a lens of dark brown silty sand (3014)

and another of dark brown sand (3015 / 3012). These last three contexts appeared to be have been deposited contemporarily within a shallow scoop.

Sub-phase Y3 (Fig. 12, 13)
This sub-phase was characterised by further dumps that were dominated by the inclusion of shattered micaceous flagstone roof slates. The earliest of these, 3011, was a layer up to 0.14m deep of light orange-brown silty clay with numerous small stones in addition to the broken slates. It was sealed by two other discrete layers, 3010, a layer of light brown sandy silt seen in the western part of the trench and 3009, a mid-grey silty sand. These layers had a combined thickness of 0.16m. Sealing these was a thin lens of sandy silt (3007) and then a thick dump of silty clay containing abundant broken slates and rubbles (3005, 3006) whose overall depth was 0.34m. This feature was in turn sealed beneath a topsoil that was 0.2m deep.

Although the sequence of deposits was tolerably clear within this trench, it is difficult to interpret what activities are represented. Clearly, there is little here that can be defined as structural, with only one possible feature that may be interpreted as a posthole. The majority of activity appeared to be levelling dumps but the significance of these remains hidden given the lack of information about the surrounding area.

Phase Z Post-medieval and Modern
Two features were detected in this phase. One was the cut for the water main pipe. The other was a discrete feature located in the south-east corner of the trench (F402). The full extent of this feature was not traced but it was at least 0.94m north – south by 0.5m east –west. Its full depth was 0.8m, so that it cut through sub-phases Y2 and Y3 and bottomed out onto the surface of sub-phase Y1. A small amount of post-medieval pottery and glass dated the feature.

Lining Hole 6 (Fig. 1)
Lining hole 6 lay about 16m north of the crossroads in the centre of Wroxeter, close to the southern frontage of insula 31. There is no known archaeological excavation within the area but a small Romano-Celtic temple set within a *temenos* is known to dominate the insula. This did not show clearly on the geophysical survey but is known from aerial photographs. Only a single definite phase of activity was represented.

Phase Z: Post-medieval and Modern
Only two discrete layers were detected within the fill of the trench. The earliest, 3505, was a layer 0.55m thick of grey-brown sandy gravel that contained Roman pottery but also modern brick. Above this was an accumulation of topsoil (3504) 0.45m thick with further thinner layers of levelling topsoil and sand (3501, 3502). These sealed the cut for the water main. Natural consisted of a clean red-orange sand (3506).

The lack of stratigraphy within this lining hole indicates that all archaeological levels had been removed in a previously unrecorded excavation.

Lining Hole 8C (Fig. 4)
Lining hole 8C was located on the extreme eastern edge of insula 1, some 10m west of the 2nd century forum colonnade. This position locates it within the 2nd century line of Watling Street, but it is likely that by the late or immediately post-Roman period the street width was much narrower, as was observed in the section dug across the nearby

street between insulae 2 and 5 by Graham Webster and Charles Daniels (1973). Only one other intervention is known in the immediate vicinity: a small pit that was dug early in 1999 to locate a new display panel. This initially bottomed out onto a stone surface causing the panel to be slightly relocated (R.H. White; letter in EH archive). More significantly, however, the site lay close to the forum colonnade which was initially excavated by Atkinson (1942) and then by Brown and Hey in 1997 (Hey, in Ellis forthcoming). There was no geophysical or aerial photographic evidence for occupation here. The position of the pipe trench within the lining hole meant that layers were seen only on the western side of the cutting. Only two phases were located.

Phase Y: Late or Post-Roman
This phase consisted of two surfaces. The earliest, 4804, consisted of cobbles set in a sandy silt. Above this was 4802, a layer of dark brown silt with small and large stones and tile. The larger stones seemed to form a surface over the underlying cobbles and perhaps represented a makeshift repair or renewal of that surface. The dark matrix presumably merely represented a natural accumulation over this rather uneven surface.

Although these surfaces can be readily interpreted as renewals of Watling Street, the date at which they were laid is unknown. They lay at a considerably higher level than the road contemporary with the forum and baths colonnades, yet were very similar to the latest road surfaces seen in the excavation on the baths basilica site nearby (Barker et al. 1997). It is known that both the baths basilica site and the forum courtyard were occupied into the 6th or even 7th century and these surfaces may belong to this late stage since presumably access was required between these adjacent sites (White 2000). An undated but presumably post-Roman burial was recorded by Atkinson in the roadside ditch close to this site (Atkinson 1942 pl. 30b) but otherwise activity of this period on or immediately adjacent to the road is unattested. It is certainly the case that the road continued in use throughout the medieval period and it is possible that the higher of these surfaces relates to this period, but this is impossible to prove given the lack of dateable evidence. It should be noted, however, that lining hole 8D, which lay about 5m south-east of this lining hole, produced four road surfaces, of which the latest, 4905, was very similar to surface 4802. This surface was then sealed by three layers of silt suggesting a period of low use before the road was surfaced in the post-Medieval period.

Phase Z: Modern
Evidence for this phase was limited to a topsoil accumulation over the latest road surface that was 0.6m deep (4803) and the cut for the water main trench. Contained within the latter was a block of concrete that was clearly contemporary with the pipe (4801). This was situated over the pipe section joint and was a 'thrust block' – effectively a weight that counteracts the pressure of the water within the main and thus prevents the springing or leaking of the joint.

Lining Hole 11A (Fig. 5)
Lining hole 11A was located within the modern road just to the south of the property boundary of Topsy Cottage and immediately opposite the Old Post Office. Both of these buildings are timber-framed survivors of the Medieval village, although the buildings themselves are likely to be 17th century in date. A disused well lay immediately adjacent to the north-west corner of the trench. The modern road here diverges from the line of the Roman road and follows a route established in the post-

Medieval period (Bassett 1990). The site thus lies within insula 27. Given that the lining hole lay within the modern road, there was no geophysical or other information for this area. The excavation was carried out using a toothed bucket on a JCB IV. The sections and base were then cleaned and recorded by hand, a process complicated by the severe waterlogging of the site. The anaerobic nature of the site was reflected in the gleyed condition of many of the contexts seen in section. Two phases of activity were detected.

Phase Y: Roman (Fig. 14b)
Given the fact that this lining hole had to be excavated by machine, description and interpretation must be limited to what was visible in section. In the east-facing section, the visible layers were separated by a rectangular, wall-like structure 0.36m wide and 0.44m high (F1051) composed of two elements, an arrangement of large sandstone blocks (6104) with a layer of blue-grey clay above (6103). This was almost certainly a clay-and-stone wall footing of the type already discussed in lining hole 1. To the south of this, was a relatively thin layer of grey-brown silty sand (6107) with a much thicker layer, 0.4 m deep, of green-grey silty sand. To the north of the wall were three layers: a dark grey silty sand (6109) at the base, an orange-brown clay (6108) and a grey-blue clay (6105). Together these layers were 0.44m deep. Sealing these contexts was a 0.2m deep layer of green-grey clay with a large proportion of stone. Layers in the south-eastern corner of the trench had been totally removed by the pipe trench.

The west-facing section was less complex than the side just described. At the base of the sequence was a 0.26 thick layer of green-yellow sand (6115). Above this was a broad, U-shaped feature that was 1.1m wide at the top, 0.7m wide at the base and had an overall depth of 0.5m (F1052). This had a single fill of grey-green clay with abundant stone, especially against the southern side of the feature. To the south of this feature was a single dump of silty sand that was 0.4m deep (6113). To the north were two layers, a yellow-brown silty sand (6114) and a green-brown silty clay (6112) whose combined depth was 0.44m.

The east and west sections of this lining hole presented contrasting pictures that are not immediately reconcilable. However, the features within this lining hole are best interpreted in the light of the discoveries in the adjacent lining hole 12 where the corner of a stone building was found to the north of which was a succession of pebble or *opus signinum* floors. If the two wall-like features seen in section in lining hole 11A were part of the same feature, then their alignment would have been the same as the wall seen in lining hole 12. It is thus suggested that wall F1051 and its companion F1052 were the footings of an external wall for the building seen in lining hole 12 and that the surfaces seen there were thus floors in a room or corridor.

Phase Z: Modern
Evidence of this phase was restricted to the broken stone foundation for the modern road surface that sealed the layers on the eastern side of the lining hole (6110) and the cut for the water main pipe.

Lining Hole 12 (Fig. 5)
Lining hole 12 was located 10m to the south of the existing property boundary of Topsy Cottage and adjacent to the roadside hedge within the modern village of Wroxeter and within insula 27. Two interventions are known from the immediate

vicinity but neither are yet published. The earliest, Houghton's 'glasswork's' trench was located 10m west of lining hole 12. This trench was an east – west cutting across the line of the Roman road leading to the ford, still visible today as an earthwork. At the base of the sequence, Houghton found an area of glassworking. What can be reconstructed of the information from this site will be published shortly (Houghton and Ellis, forthcoming). The other intervention, in fact representing two episodes of work, was located within the property of Topsy Cottage itself. This was modernised in the mid-1970s, without planning consent or record. Considerable Roman remains were found but the nature of these, other than the fact that they were structural, was not recorded (Baugh 1975). In 1980, further work was carried out, including extensive stripping. This was not carried out under archaeological supervision, but some time was allowed for archaeological recording. This intervention too provided evidence for structures aligned on the Roman street. The report on both pieces of work has been completed and will be published shortly (Bird, in Ellis, forthcoming). In addition to these excavations, the discovery of structural remains within lining hole 12 prompted a small-scale resistivity survey that was carried out by the excavation team. This located at least two buildings on the same alignment as that found in lining hole 12 (Fig. 11).

This trench provided the most complex sequence of stratified deposits out of all of the lining holes. It was also double the normal length of the other holes, a necessity forced by the need to expose the bend in the pipe in case the lining crew needed swift access to it. For the same reason, the small part of a Roman masonry building exposed in the trench had to be removed, after consultation with the contracting engineers, Severn Trent, and the English Heritage Inspector. Three major phases were detected.

Phase X: Early Roman
This phase was characterised by a number of linear cuts that had subsequently been filled by a number of dump levels. Unfortunately, there is no way of establishing how long the linear features were open before they were backfilled, and the relationships between features were often destroyed by the pipe trench cuts. Consequently, there may be more than one sub-phase of activity within this group of contexts, as is indeed suggested by the pottery.

Sub-phase X1 (Fig. 16, 20)
The earliest feature was a north-south linear cut at least 3.2m long and up to 0.7m wide (F1111) that lay to the east of the water main. This had an asymmetrically V-shaped profile that converged with the cut for the water main trench. It had probably extended to the west of the water main trench but this end of the cut had been removed by a secondary water main trench. It was also apparent that the feature widened at this northern end too. On the western side of the trench was a broadly shelving cut at least 2m by 0.5m in size and 0.6m deep that was aligned roughly east – west (F1112). It had been truncated on the east side by the water main cut while the southern and western sides lay outside of the area of excavation. It is possible that this feature linked up with F1111 but any relationship between the two features had been destroyed by the water main trench. The fills of these features was also varied. Within F1111 was a single fill 0.4m deep of light beige-yellow silty clay with some charcoal flecks (6544). A complete but shattered Malvernian 'tubby cooking pot' and sherds of Malvernian palaeozoic-limestone tempered ware were found within this fill (Fig.19.3). Cut F1112 had two fills. The earliest was a layer of light brown silty sand up to 0.22m deep (6546) that was sealed by a dump of light beige sandy silt of similar depth (6540). This

fill too contained sherds of Malvernian palaeozoic-limestone tempered ware. One other context may be positively associated with this phase: a patch of dark olive-tan silty sand with some stones and flecks and pieces of charcoal (6532) that lay within the surface of 6544. This was thought to be root disturbance but could conceivably have been a cut for a small posthole.

Sub-phase X2 (Fig. 17, 20)
These layers were then sealed by other similar dumps that had a number of smaller discrete features cut into them. On the western side of the trench, a linear cut 0.6 by 0.4 in plan and 0.7m deep (F1105) was dug into the backfilled east – west cut. This had been truncated at the east end by the pipe trench, but did not emerge into the eastern half of the trench so cannot have extended much more to the east. The western end was beyond the limit of excavation. There were two fills: the earliest was a light beige silty sand with some charcoal flecking (6537), the latest was a mid-grey silty sand with charcoal flecks and lumps as well as some stone (6521). These fills had then been sealed by a thin layer of mid brown sandy silt with charcoal (6538). Perhaps contemporary with these contexts was 6536, a dump of light beige-yellow sandy silt that was 0.6 by 0.4m in plan and 0.15m deep which lay to the north of cut F1105. This in its turn had been cut into by a linear feature, 1.4m by 0.4m in plan, aligned north – south (F1108). The fill of this cut, 6505, was a soft brown sand that once again had charcoal flecks within it. Overlying this was a thin lens of pea-gravel (6513) that may also have been part of the fill. Adjacent to these contexts was a layer of compact reddish silt (6529).

On the eastern side of the trench, three similar dumps were identified, with an overall depth of 0.7m. The earliest, a dump of light beige clayey silt with flecks of charcoal 0.2m thick (6531) sealed the underlying sub-phase. This in turn lay beneath another dump 0.3m deep of mid brown sandy silt with moderate amounts of small stone (6541). The latest dump, 6502, was of dark olive coloured sandy silt with charcoal flecks. These dumps were cut into at the southern end by a linear feature aligned roughly north-west – south-east (F1109). This lay adjacent to the southern edge of excavation and extended beneath it. The recovered extent of this feature was 0.5m east – west by 0.2-0.5m wide with a depth that varied between 0.3-0.1m. The western end of this feature had been removed by the water main trench. Two fills were identified: an olive coloured layer with charcoal flecks (6526) and a tan-coloured clay silt (6528).

Phase Y: Roman
The sequence of discrete linear cuts and dumps levels that characterised the previous phase were replaced in this phase by evidence for the construction and use of a substantial mortared stone building (sub-phase Y1, followed by its demolition (sub-phase Y2).

Sub-phase Y1 (Fig. 18, 20)
The only surviving part of the building was a fragment of mortared sandstone wall that survived on the western side of the trench 1m by 0.5m in plan and 0.36m deep (6522) built within a cut of the same dimensions as the wall (F1107). The wall was aligned north-east south-west. It did not survive on the eastern side of the trench but a linear cut of similar dimensions and depth lying at right angles to the line of the wall probably marked its robber trench (F1106). This feature is further discussed below.

To the south of the wall were two contexts that may be considered to be contemporary with this building. The first, 6523, was a thin layer of plaster and mortar with silt that may represent construction levels. Above this was a charcoal-rich layer of silt with stones that was 0.4 by 0.8m in extent and 0.1m thick (6520). To the north of the wall, there was an unmortared deposit of sandstone blocks (6511) that perhaps represented waste from the construction of the wall. Sealing this were two layers that may have been surfaces. The earliest, 6512, was a layer of yellow sandy mortar with a few stones and charcoal flecks with a maximum depth of 0.07m. Overlying this was a surface composed of horizontally-laid shattered micaeous flagstone roof slates that may either have been a path in its own right or formed the foundation of one (6509).

On the western side of the trench, the sequence was slightly more complex. At the southern end of the trench there was a small cut 0.4 by 0.2 m in size (F1103) that had been half-sectioned by the water main trench. Its fill was a dark grey sandy silt (6516). Further south there were three deposits that were of similar character to 6520, the charcoal-rich layer seen on the western side of the trench. These contexts included 6527, a thin charcoal-rich layer with plaster and stones 0.4 by 0.3m in area and 6524, a layer 0.6 by 1.8m in extent. The third context, 6525, was a compact sandy clay sit with pebbles and plaster that measured 0.9 by 0.4m in area.

The remaining contexts on the eastern side of the trench lay at the northern end and were much more structural in character, representing floors that were presumably contemporary with the wall discussed above. The foundation levels for the floor consisted of either freshly broken and crushed red sandstone (6533) or layers of mid-brown silt (6535, 6539). These provided levelling for a coarse foundation layer of loose silt with pebbles (6534) on which was laid a mortared pebble floor (6515). This was contemporary with a small fragment of *opus signinum* flooring (6517) that had largely been removed by the water main trench. These layers were roughly 1m by 0.5m in extent, although they extended eastwards out of the area of excavation and had been truncated on the western side by the water main trench.

Sub-phase Y2 (Fig. 19, 20)

The remaining contexts in this phase relate to the destruction of the building. These included 6508, a layer of shattered painted plaster 0.1m deep and 1m by 0.5m in area that directly overlay the pebble and *opus signinum* floor in the north-east corner of the trench. This plaster is presumably derived from the wall whose destruction is marked by a linear cut 0.7m by 0.45m in plan and 0.15m deep that was aligned north-west – south-east (F1106). This feature was interpreted as the robbed-out return of the wall seen on the western side of the trench. Its fill (6507) was consistent with such an interpretation since it was a pinky-brown clay with inclusions of sand and fragments of rock and mortar, all elements that might be expected in the foundation of a building at Wroxeter. Curiously, the feature did not run into the eastern edge of excavation but stopped short of it. Its line was continued, however, by a semi-circular cut seen in this section (F1102). This was 0.4m wide and 0.2m deep, dimensions not dissimilar to those of the robber trench and it certainly matched the alignment of that feature. The fill, 6510, was a dark brown sandy silt with a large amount of angular stone in it, which did not match 6507. In addition, the level at which it was cut indicated that it lay at a stratigraphically higher position, within phase Z. It is possible, therefore that two phases of robbing existed so that the earlier episode was only partial and that there was then a later episode of robbing. Elsewhere in the trench, the archaeological deposits

were almost everywhere overlain by a layer of black charcoal-rich silt with small and large stones throughout (6504). A smaller area of rubble (6503) that lay adjacent to wall 6522 probably represented tumble from its destruction.

Phase Z: Modern
In addition to the possibility that there was a second phase of robbing, as noted above, there were three other activities that could be assigned to this phase. The most important of these in terms of its destructiveness was the cutting of the water main trenches. This had clearly been done as two episodes: a trench cutting was made into the field from the north-east (F1104, F1110) that joined a cutting made from the south (F1100). Unfortunately, the two cuts did not quite meet initially so that there was some overlap. This was only recognised at a late stage of the excavation and a number of contexts that had been assigned to the linear cut had to be abandoned as modern. Towards the base of the cut, some of these included blocks of intact straigraphy derived from phase X1 deposits that had undoubtedly been redeposited.

The pipe trench cuts had been made through a topsoil that was surprisingly shallow: in places only 0.1m deep and a maximum of 0.2m. This phenomenon may be accounted for by the fact that until the mid-nineteenth century, this area was part of the still-occupied village of Wroxeter. This makes it even more surprising that there was no evidence for post-Roman occupation on the site. In fact, the pottery recovered did not go beyond the 3rd century, other than a few very modern sherds from the topsoil. However, it may be possible to account for this by the local topography of this part of the field where large quarry-like scoops are still visible on the ground. There has clearly been extensive, and probably quite late, terracing of this roadside edge of the field and this may be associated with the (unrecorded) destruction of the village between the 1850s and 1880s. This may also account for the late, secondary, robbing of the wall mentioned in phase Y2 since such terracing is bound to have exposed walls here. Alternatively, this robbing could have been carried out when the road was cut in the 18th century. This activity too would have exposed walls, as has been suggested in lining hole 11A.

The last activity attested is the digging of a substantial circular posthole 0.4m in diameter and 0.65m deep (F1101). The fill of this was of topsoil-like silt with some large stones for the post-packing (6506). This feature presumably related to the erection of the nearby fence.

Lining Hole 12A Fig. 5)
Lining hole 12A was located within the gateway of the field that lies opposite the gate into the Church of St Andrew in insula 27. It was 10m to the north of the drive of Boathouse Cottage. No other intervention is known in the vicinity. Only a single phase of activity was represented.

Phase Z: Modern
The activity within this lining hole was limited to an accumulation of topsoil that was 0.2m deep. Below this was a dump of mixed topsoil and rubble 0.5m deep that came down onto the natural subsoil. Cutting into this layer were two service trenches: the water main trench and a telephone cable. At the very base of the sequence was the truncated cut for a modern fence post.

Lining Hole 13 (Fig. 6)
Lining hole 13 was located in the verge of the driveway leading into Boathouse Cottage in insula 27. No other intervention is known in the vicinity. Only a single phase of activity was represented. This lining hole had to be excavated by machine since modern concrete-lined inspection chambers filled much of the available area of excavation. In addition, during the relining process, a blockage occurred that necessitated the excavation of a further 9m along the line of the existing main. The unlined section of the old main was then cut out and replaced with a plastic section. The total length of the excavation was thus 11.3m.

Phase Z: Modern
Activity in this lining hole was confined to thick dumps of clean sandy silts with varying amounts of small stone within them whose overall depth was 1.3m. These levels had been cut by the water main trench which in its turn had been sealed by a topsoil of 0.26m depth.

Lining Hole 14 (Fig. 6)
Lining hole 14 was located 10m to the south of the property boundary of Boathouse Cottage and adjacent to the modern road. In the Roman period, this site will have been located on the back of the inner rampart of the town, adjacent to the road leading to the ford. There is no geophysical evidence for the area but two topographic surveys have been carried out in recent times to map the extensive remains of medieval water management systems that are perhaps associated with Wroxeter's medieval manor house (Barker 1990). The site of the manor was excavated by Wright in the mid-19th century, but was not adequately published (Wright 1872, 101). Only one phase of activity was detected.

Phase Z: Modern
The position of the water main trench within this intervention meant that stratigraphy was only visible in the eastern half of the trench. A relatively shallow series of deposits overlay the waterlogged natural sands and gravels. A single feature of interest was noted. This was a shallow wall, aligned roughly east – west, that was 1.05m wide and 0.6m long, though the eastern and western limits of the feature were defined by two shallow cuts to the north and south. The wall, 7503, was unmortared and constructed from rough sandstone blocks and cobbles on a clay foundation (7505) to give a roughly level surface about 0.3m high. Its build was therefore less weel-structured than the examples discussed in lining holes 1 and 11A. Almost certainly, this was a dwarf wall for a timber-framed building. Post-medieval pottery recovered from the associated levels gave a date for this feature.

Lining Hole 15 (Fig. 6)
Lining hole 15 was located within a dip in the rampart of the town wall, 40m south of lining hole 14 and adjacent to the modern road. As with lining hole 14, there is no geophysical evidence available here but the area has been topographically surveyed by Barker (1990) and Barratt (Barratt *et al.* 2000). The lining hole was located in the base of a shallow depression that cuts across the rampart at this point. The origin and function of this feature is unknown but it is thought to be a medieval holloway leading down to a mill pond formed during the medieval period by damming the natural stream that runs down to the River Severn in this area (Barker 1990). On excavation, the trench was found to be severely waterlogged with water actively draining into the hole

during the work necessitating pumping to permit work to continue. This made observation of the stratigraphy difficult and the collection of finds extremely problematic. Given these problems, the phasing is rather tentative but two phases may be suggested.

Phase Y: Roman / Medieval (Fig. 21)
Only four contexts could be assigned to this phase. All appeared to be contained within a feature whose extent lay beyond the area of excavation and whose size could not be ascertained. It was also clear that the layers within this feature continued beneath the base of the trench but the full depth could not be gauged. The lowest fill identified was a grey silty sand with occasional very small stones (8006). This was at least 0.4m thick but its limit exceeded the depth of excavation. Overlying this was a distinctive horizon 0.14m thick of greenish sand with pea grit (8005). Above this were two deposits that were a virtually identical dark brown silty clay which differed only in the amount of stone they contained. The lowest layer (8004), which was 0.32m thick, contained a large amount of ashlar sandstone and other stones that, however, did not appear to form a coherent surface. The overlying layer, 8003, was less stony and was only 0.18m thick. The combined depth of the deposits was about 1m.

Phase Z: Modern
Only two activities were identified in this phase: the accumulation or dumping of a topsoil that was 0.7m thick, and the cutting of the water main trench and its associated concrete thrust block.

Whilst the sequence of deposits in the lining hole were clear, the significance of the levels was difficult to interpret, almost certainly an outcome of the small sample taken. The layers within the cut were laying virtually horizontally and this implies that if they were filling a feature, then that feature was very large. It is possible that the feature was in fact the holloway itself. If so, then the width of this on the surface today is about 10m while its depth is unknown. Sadly, the date and origin of this holloway remain mysterious. Very clean, unabraded Roman pottery came from the fill but this is hardly surprising given the location of the excavation and all of this may be residual and this feature could equally be medieval in origin.

Lining Hole 16 (Fig. 6)
Lining hole 16 was located towards the crest of the town rampart, 30m south-east of lining hole 15. As with the other lining holes in this field (14 and 15) nothing is known of the archaeology here except for the topographic surveys. Only two phases were identified.

Phase Y: Roman or Medieval
The earliest context identified was a small area of sandy silt in the north-east corner of the trench (8508). This overlay solid red clay that may have been the natural subsoil here or was the remains of the rampart dump. Its solidity suggested that it was natural. Cutting this small patch was a circular feature (F1503) that had been half-sectioned by the water main trench. Its fill was a loose sandy deposit with stone (8507). A similar cut (F1502) lay on the eastern side of the trench and this too had been cut by the water main so there is a possibility that they were once part of the same feature. Certainly, the fill of this feature (8506) was a sandy silt similar to 8507. Overlying these contexts

were thin horizons of light brown sandy silt (8503-8505, 8509) whose overall depth was 0.2m. These perhaps marked a ploughsoil developing over the rampart.

Phase Z: Modern
Only two activities were identified in this phase: a layer of topsoil that had accumulated over the phase Y deposits to a depth of 0.36m, and the cut for the water main trench.

Lining Holes 7, 8, 8D, 9, 10, 11 (Fig. 1, 4, 5)
These lining holes were all cut within the existing road surface and all but one (lining hole 11) coincided with the known position of the main Roman road running through the town on its north – south axis (i.e. The Watling Street). The sequence in all of them was rather similar and thus they are examined together. All were excavated by machine but cleaned and recorded by hand.

Lining hole 7 lay at the modern crossroads at the very centre of the Roman town, 30m south of lining hole 6. This will have been close to the Roman crossroads of insulae 31 and 32 to the north and 1 and 2 to the south. Only two definite road surface were noted: 4004 and 4011, but there were other layers that appeared to make up for roads and these hint at another two road surfaces that were not seen in section. The overall depth of these surfaces was 0.6m. On top of these was an accumulation of topsoil-like material and then layers of road foundation and tarmac.

Lining hole 8 lay 75m south of lining hole 7 and immediately adjacent to the modern farm building occupying the south-east corner of the farmyard. Its position within the Roman town would be roughly at the crossroads of insulae 1 and 2 to the north and 4 and 5 to the south. The deposits here had been severely damaged by the water main trench and by an even larger cut for the insertion of a sewer pipe. Only a small surviving island of archaeology was left, and it was decided to retain this in situ. Two road surfaces were seen in section whose overall depth totaled 0.75m.

Lining hole 8D was located 5m south-east of lining hole 8C and thus lay on the street between insulae 4 and 5, occupied by the forum and baths respectively. A relatively straight-forward sequence of four successive road surfaces of small pebbles set in sand and often concreted with iron pan was detected here. These had conventional foundations of crushed red sandstone or silty layers. The overall depth of these various levels was 0.56m. Overlying these was an accumulation of dark brown silts that probably represent post-Roman disuse of this part of the road.

Lining hole 9 was located 80m south of lining hole 8D, near the north-eastern corner of insula 8. This will have been at the northern end of the area excavated by Bushe-Fox in 1914, his Site VI (Bushe-Fox 1916). A total of four successive road surfaces was excavated in this lining hole. These were of the usual fine pebble in sandy matrix composition and had foundations of silt or crushed sandstone. The overall depth of these layers was about 0.75m. Overlying this was a thinner deposit of post-Roman silts that had accumulated to a depth of 0.25m.

Lining hole 10 was located 150m south of lining hole 9, towards the southern end of insula 8 and probably close to Sites I-III as defined by Bushe-Fox (1912). The sections within this lining hole may be held as typical of those excavated within the road (Fig.

14a). In this case, there were four successive road surfaces of pebbles, often concreted with iron-pan. Some of these had foundations of crushed fresh red sandstone, a common foundation for both roads and other surfaces at Wroxeter (Barker et al. 1997). The total depth of these layers was about 1m. Overlying these was the cut for the water main and the modern road foundation and tarmac layers.

Lining hole 11 was located 110m south-west of lining hole 10 at the junction of the modern roads outside the Wroxeter Hotel. Within the Roman town, this would have been south of the main road passing down to the ford, at the northern tip of insula 27. Although the Roman road is visible as an earthwork within the modern field adjacent to the road, there is a possibility that the road running along the river cliff existed in the Roman period too (Bassett 1990). If so then this trench may well have coincided with its road surfaces.

Unfortunately, the road here had been trenched severely in modern times both by the water main and by substantial field drains. These latter features could be dated by their form to the 18th century since they consisted of substantial horseshoe-shaped tiles. The remaining archaeology within the lining hole was confined to a narrow strip on the eastern side and its excavation was made more problematic by the high water table. In the event, all that was visible in the section were layers of sand, none of which were convincing as road surfaces.

Lining Holes 17, 18, 19 (Fig. 1)

Lining holes 17 and 18 lay south of the Roman town wall and beyond the scheduled area. Lining hole 17 was located within the valley of a small stream that effectively runs in the outer ditch of the town wall and forms the southern limit of the town. It lay adjacent to the road and 50m south-east of lining hole 16. The fill of the trench consisted entirely of humic silts that had naturally accumulated within the valley and there was no sign of anthropogenic activity, with the exception of the cut for the water main. Lining hole 18 (not on Fig. 1), located at the end of the main and 140m south-east of lining hole 17, was almost entirely filled by the modern concrete inspection chamber required here. No archaeological contexts survived.

Lining hole 19 was located immediately south of the southern perimeter of Norton Farm, and 150m north of lining hole 1. This positioned the trench in or near an area that was excavated by Thomas Wright in 1860 when he found a number of cremations (1872). This was also an area where surface collection had taken place as part of the Wroxeter Hinterland Project. This latter survey had located a dense scatter of Roman material in this area but without any particular concentrations (Gaffney, White and Buteux, forthcoming a). Two possible phases were detected.

Phase Y: Roman ?

At the very base of the lining hole, a cut was observed in the east-facing section that was located within the red sand subsoil. The cut, F1906, was 0.26m deep and 0.4m wide but its shape in plan could not be determined. The top of the cut as identified lay 0.6m below the modern ground surface. No cut was visible in the layers above this feature but since these were of black loam, this fact is unsurprising. The fill (10009) was of dark reddish-brown sand with what appeared to be a very small amount of charcoal within the base.

It was thought that this feature might be a cremation, in the light of the discoveries of Wright in the same area, but conclusive proof was lacking since the majority of the feature had been removed by machine during an earlier phase of excavation.

Phase Z: Modern
The remaining contexts were all modern and were associated either with the original cutting of the water main trench or with the relining episode associated with the large water main running along the old A5. An exception to these events was a burial seen in section in the south-west corner of the excavation. It was initially believed that this was a human burial whose size suggested a neo-natal fatality. Clearance from ground level down to the burial showed that the burial was actually that of a lamb and that this too was a modern feature.

2.2 A small-scale resistivity survey carried out around Lining Hole 12 (Fig. 15)
by Roger White

The discovery of a masonry wall in Lining Hole 12 (q.v.) prompted an on-site meeting with the English Heritage Inspector and relevant contractors to decide on a mitigation strategy. It was decided to remove the wall but to carry out a small-scale geophysical survey to key the remains in to those that had been excavated. Since the field had already been surveyed by gradiometer as part of the wider Wroxeter Hinterland Project (Gaffney and Gaffney, 2000), survey was limited to resistivity.

Methodology
The instrument used was a Geoscan RM15 resistivity meter. A total of 10 20 x 20m grids was surveyed, arrayed along the eastern side of the field from Topsy Cottage to the gate in the south-east corner of the field. Readings were taken every 0.5m at a 1m traverse spacing. Data were processed in Geoplot 3.0.

Results
The survey located a number of possible wall alignments at an angle to the current road but a right angles to the Watling Street which runs obliquely as an earthwork from a point halfway along the Topsy Cottage boundary wall to the south-east corner of the field where the Roman ford lay. These remains are thus presumably Roman in date and appear to demonstrate that other houses like those seen in Lining Hole 12 may be expected along at least the eastern side of the street.

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The swift and smooth progress of the work would not have been possible without the full co-operation of the commissioning authority, Severn Trent Water plc and especially Steve Duddell, Tim Ellis and Dave Atkins. The contractors, Ryan plc., were most helpful in providing on-site assistance through their manager Phil Mellor and his colleagues, led by Colin Fletcher. The BUFAU digging team consisted of Roger White and Gary Coates as co-directors with Mary Duncan, Chris Hewitson, John Hovey, Theresa Nation, John La Niece, Chris Patrick and Ellie Ramsey.

3: THE ARTEFACTS

3.1 The Roman pottery

by C Jane Evans with contributions from Rob Ixer, David Williams and Steven Willis

Introduction

A total of 786 sherds of Roman-British pottery was recovered from the pipeline excavations, weighing 11.2kg. Romano-British pottery was recovered from 13 of the Lining Holes (Table 1), the largest group coming from Lining Hole 12. The condition of the pottery varied between the Lining Holes, as did the quality of the stratigraphy and the number of diagnostic sherds. Overall, the pottery ranged in date from the conquest period, through to the fourth century. Only one of the excavations produced an assemblage of major significance; Lining Hole 12, which provided the first conquest-period assemblage from Wroxeter and evidence for the location of the early *vicus*.

Table 1: Summary of the pottery by Lining Hole

Lining Hole	Qty.	% Qty	Wt. (g)	% Wt.	Av. Sherd Wt. (g)	Rim EVE	% Rim EVE.	Base EVE	% Base EVE
1	46	6	336	3	7	69	9	76	9
2	20	2.5	128	1	6	0	0	8	1
3	0	0	0	0	0	0	0	0	0
4	44	6	416	4	9.5	53	7	32	4
5	110	14	1232	11	11	186	23.5	270	33
6	11	1	127	1	11.5	26	3	0	0
7	0	0	0	0	0	0	0	0	0
8	3	<1	25	<1	8	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	1	<1	11	<1	11	0	0	0	0
12	520	66	8326	74	16	397	50	387	48
13	0	0	0	0	0	0	0	0	0
14	4	<1	201	2	50	8	1	0	0
15	21	3	321	3	15	39	5	22	3
16	1	<1	71	<1	71	0	0	15	2
17	2	<1	39	<1	19.5	13	2	0	0
18	0	0	0	0	0	0	0	0	0
19	3	<1	3	<1	1	0	0	0	0
TOTAL POT	786		11236			791		810	

Methodology

The pottery was recorded in full using the standard BUFAU Roman pottery recording system, described in the project archive. This was cross-referenced with the fabric and form series for the Baths and *Macellum* at Wroxeter (Timby et al. 2000), and the Baths Basilica (Symonds 1997). Precise form types and broad vessel classes (for example bowl, flagon, mortarium) were both recorded. Other characteristics studed included decoration, evidence for manufacture (wasters), repair (rivets and rivet holes) and use. The assemblage was quantified by sherd count, weight and EVE. Forms were quantified by rim EVE, although both rim and base EVEs are presented in some tables. Most of the pottery was fairly abraded, although there was some variation between Lining Holes. Most of the assemblages were too small to justify detailed publication. For these, the results of analysis have been summarised, highlighting information pertinent to the date and character of the group. Lining Hole 12, however, produced a very significant early assemblage, which is illustrated and discussed in full.

The fabrics

Table 2: List of fabrics represented

Common Name	Timby et al. Code	Archive Code	Description/references (T&D = Tomber and Dore 1998)
Severn Valley ware	SVOF	O02.2	Standard oxidised fabric, unsourced: T&D SVW OX 2, 149, Pl 122; Webster 1976, Rawes 1982
	SVO	O02.1	Coarser variant, oxidised
	SVR	G04.1	Coarser variant, reduced
	SVR	G04.11	Variant with oxidised core and blackened surfaces
	SVORGO	O03	Organic tempered variant, oxidised, with elongated voids usually appearing as black or dark grey streaks in fracture.
	SVORGR	G05	Organic tempered variant,reduced
	SVORGR	G05.1	Variant with oxidised core and blackened surfaces
'Wroxeter' ware, oxidised	WWO	O04.1	Similar to SVO but abundant quartz; T&D WRX OX, 178, pl 149a-b
'Wroxeter' white c.c. ware	WWOC	O04.2	Variant of WWO with white colour coat; T&D WRX WS, 180, pl 151
'Wroxeter' ware, fine	WWOF	O04.3	Fine variant of WWO (separated from SVO on the basis of form)
'Wroxeter' ware, reduced	WWR	G06	Reduced variant of WWO
	WWRF	G06.1	Reduced variant of WWOF
'Wroxeter' mortaria	MWWO	M07f	Oxidised mortaria, fabric similar to SVO; T&D WRX OX, 178, pl 149a-b
	MWWOC	M07d	Coarse oxidised mortaria, fabric similar to WWO; T&D WRX OX, 178, pl 149a-b
	MWWR	M07b	Reduced mortaria, fabric similar to SVR
	MWWWW	M07a	White mortaria; T&D WRX WH, 179, pl 150a-c
Cream wares	CREAM	P00	Represented by a single sherd in a soft fabric with few visible inclusions. Possibly also from Mancetter-Hartshill
	CREAMF	P04	Fine variant, May include other sources e.g. Mancetter Hartshill
	VRW	P03	Coarse variant, ?Verulamium ware, may include local products (Timby et al. CREAMC); T&D VER WH, 154, pl 126a-b
	WHEG	P07.1	White eggshell ware of uncertain source
Malvernian metamorphic ware, handmade	MALVH	N02.1	T&D MAL RE A, 147, plate 120; Peacock 1967
Palaeozoic limestone-tempered ware, handmade	MALVB	N02.2	Peacock fabric B1 (1968. 421-2, figs. 2, 4)
South-east Dorset Black-burnished 1, BB1	BB1	B01	T&D DOR BB 1, 127, pl 100; Williams 1977; Seager Smith and Davies, 1993
Late shell tempered ware	CALC	J01	T&D ROB SH, 212, pl 177
Lower Nene Valley colour-coated ware	NVCC1	C01	T&D LNV CC, 118, pl 91; Howe, Perrin and Mackreth, 1980 White fabric
Mancetter-Hartshill mortarium	MANCH	M02	T&D MAH WH, 189, pl 157a-d; Hartley 1973, 143-47
Samian, South Gaulish	SAMSG	S01	La Graufesenque, T&D LGF SA, 28, pl 17
Samian, Central Gaulish	SAMCG	S02	Les Martres-de-Veyre, T&D LMV SA, 30, pl 19
	SAMCG	S03	Lezoux, T&D LEZ SA ½, 31-2, pl 20, 21
Samian, East Gaulish	SAMEG	S04	Blickweiler/ La Madeleine, T&D BLW SA, 35, pl 23/ MAD SA, 38, pl 26
	SAMEG	S04A	Argonne, T&D ARG SA, 34, pl 22
	SAMEG	S04R	Rheinzabern, T&D RHZ SA, 39, pl 27
	SAMEG	S04T	Trier, T&D TRI SA, 41, pl 29
Moselkeramik	TRR	C04.1	T&D MOS BS, 60, plate 43
Lyon c.c.	LYONS	C06	T&D LYO CC, 59, pl 42
Central Gaulish c.c.	CGCC	C09.2	T&D CNG CC 2, 53, plate 38
Amphorae	AM	A01	Baetican Dressel 20, Peacock and Williams 1986, class 25; T&D BAT AM 1/2, 84-5, pl 61, 62
	AM	A00	Southern Spanish, class uncertain

Table 3: Summary of the Roman pottery assemblage by Fabric/source

Common Name	Fabric Name	Qty.	% Qty.	Wt. (g)	% Wt.	Average sherd Wt. (g)	Rim EVE	% Rim EVE	Base EVE	% Base EVE
Severn Valley ware	SVOF	53	7	476	4	9	64	8	22	3
Coarser variant	SVO	96	12	767	7	8	59	7.5	40	5
Reduced	SVR (G04.1)	33	4	283	2.5	9	5	<1	30	4
Reduced	SVR (G04.11)	1	<1	5	<1	5	2	<1	0	0
Organic tempered	SVORGO	16	2	210	2	13	38	5	0	0
Organic tempered, reduced	SVORGR (G05)	35	4.5	1275	11	36	36	5	18	2
Organic tempered, reduced	SVORGR (G05.1)	7	<1	55	<1	8	13	2	0	0
Total Severn Valley ware		*241*	*31*	*3071*	*27*	*13*	*217*	*27.5*	*110*	*14*
Sandy, oxidised ware	WWO	75	9.5	532	5	7	90	11	16	2
Fine	WWOF	3	<1	17	<1	6	0	0	0	0
Cream slipped	WWOC	22	3	125	1	6	9	1	40	5
Sandy, reduced ware	WWR	34	4	330	3	10	22	3	73	9
Fine	WWRF	1	<1	1	<1	1	0	0	0	0
Wroxeter mortaria, oxidised	MWWO	3	<1	84	<1	28	8	1	0	0
Cream slipped	MWWOC	1	<1	6	<1	6	0	0	0	0
Reduced	MWWR	1	<1	66	<1	66	0	0	17	2
Wroxeter mortaria, white	MWWWW	1	<1	12	<1	12	1	<1	0	0
Total Local wares		**382**	**49**	**4244**	**38**	**11**	**347**	**44**	**256**	**32**
Malvernian metamorphic	MALVH	22	3	2114	19	96	101	13	100	12
Palaeozoic limestone tempered	MALVB	145	18	1255	11	9	25	3	29	4
South-east Dorset BB1	BB1	120	15	1138	10	9	147	19	190	23.5
Late shell tempered ware	CALC	2	<1	55	<1	28	0	0	0	0
Nene Valley cc ware	NVCC1	8	1	27	<1	3	0	0	0	0
Mancetter Hartshill mortaria	MANCH	3	<1	46	<1	15	6	<1	0	0
Cream ware	CREAM	2	<1	11	<1	6	0	0	0	0
Fine	CREAMF	7	<1	37	<1	5	5	<1	0	0
Coarse (Verulamium)	VRW	1	<1	1	<1	1	0	0	0	0
Total Traded ware		**310**	**39**	**4684**	**42**	**15**	**284**	**36**	**319**	**39**
White eggshell ware	WHEG	9	1	12	<1	1	0	0	0	0
Total uncertain source		**9**	**1**	**12**	**<1**	**1**	**0**	**0**	**0**	**0**
Samian, SG La Graufesenque	SAMSG	19	2	190	2	10	37	5	54	7
CG, Les Martres-de-Veyre	SAMCG (S02)	9	1	43	<1	5	25	3	0	0
CG, Lezoux	SAMCG (S03)	34	4	255	2	8	81	10	71	9
EG, Blickweiler / La Madeleine	SAMEG (S04)	2	<1	14	<1	7	7	<1	10	1
EG, Argonne	SAMEG (S04A)	1	<1	18	<1	18	10	1	0	0
EG, Rheinzabern	SAMEG (S04R)	2	<1	9	<1	4.5	0	0	0	0
EG, Trier	SAMEG (S04T)	2	<1	9	<1	4.5	0	0	0	0
Central Gaulish c.c.	CGCC	2	<1	2	<1	1	0	0	0	0
Lyon c.c.	LYONS	1	<1	3	<1	3	0	0	0	0
Moselkeramik, Trier	TRR	5	<1	17	<1	3	0	0	100	12
Dressel 20 Amphora	A01	6	<	1489	13	114.5	0	0	0	0
Southern Spanish Amphora	A00	2	<1	247	2	123.5	0	0	0	0
Total Imported		**85**	**11**	**2296**	**20**	**27**	**160**	**20**	**235**	**29**
TOTAL POTTERY		**786**		**11236**			**791**		**810**	

The fabrics are listed in Table 2 below, and quantified in Table 3. Full descriptions can be found in the Wroxeter Baths and *macellum* report (Timby et al. 2000) and the National Roman Fabric Reference Collection (Tomber and Dore, 1998). Two of Severn-Valley-ware fabrics had deliberately blackened surfaces (G04.11, G05.1). This is a characteristically early feature; similar black-surfaced wares are noted from *Ariconium* in 'transitional' forms (Willis forthcoming a, 85). The sherds of amphora were identified by David Williams, but did not justify a full report, and the small quantity of mortaria was identified by the author.

The graffiti by C Jane Evans

Graffiti, cut after firing, were noted on the rim and shoulder of a storage jar in organic-tempered Severn Valley ware (Fig. 22.10). The graffito on the rim comprised three vertical lines, possibly numerical, extending from the external surface to just inside the rim. Other slash marks on the internal surface may be accidental. Directly below this graffito, on the shoulder of the vessel, is a part of a second graffito. This comprises a vertical and horizontal line, intersecting at right angles, inside which are the end points of two opposing diagonal lines, and two, more-faintly inscribed, vertical lines. These probably formed part of an inscribed box with an 'X' inside it, similar to examples noted at Alcester (J Evans et al. 1994, fig. 56.13, fig.57.14-16), perhaps with a fainter vertical line or lines down the centre. The graffiti published from the southern extramural area at Alcester (op. cit. 124-30) provide a very useful parallel, being noted predominantly on similar organic-tempered storage jars dating to the first- to second-century. Evans suggests that the numerals on the rims may have indicated the quantity of the contents, or the empty weight of the vessels, while the symbols on the body may have been a mark of ownership or a symbol of the contents. The graffiti from Alcester were predominantly cut after firing, and Evans suggests that this would have been done on site, rather than by the potter, perhaps to identify personal possessions in a communal store.

3.2 Petrographic reports
by Rob Ixer and David Williams

Introduction
A single sherd of the limestone-tempered ware found in Lining Hole 12, context 6544, was submitted to Rob Ixer for petrographic analysis. The aim was to check the initial, macroscopic identification of the fabric as Peacock's fabric B1 (Peacock 1968). Rob Ixer subsequently requested a further ten, small samples for more detailed analysis, with the aim of identifying a more specific source for the ware. Two other sherds, of organic-tempered Severn Valley ware, were also submitted to David Williams for analysis. It was hoped that diagnostic inclusions might be present that could point to a source for these sherds. The sherds were also to be compared with samples in a similar fabric from Metchley Roman fort in the West Midlands.

The Palaeozoic-limestone-tempered ware
by Rob Ixer, University of Birmingham

A single, standard thickness, thin section was prepared from the sherd. The sherd, its cut surface and the thin section were investigated using a x10 hand lens. Routine transmitted light petrography was employed to describe the petrography of the sherd.

The fabric is coarse, with abundant, angular, white calcite/limestone fragments ranging from 1-3mm in diameter. No other fragments are visible. The matrix is grey (N4 on the GSA rock-colour chart), with a dark grey external surface (N3). Visual inspection of the thin section shows colourless calcite/limestone clasts, (up to 2mm in diameter) and black organic matter (0.5-1mm long) set in a moderate yellowish-brown (10YR 5/4) clay matrix. It is evenly tempered and has a uniform firing colour. In thin section the clay is clean, carrying small quartz grains, brown clay ?balls but no white mica. The non-plastic component of the pot comprises, in decreasing order of abundance, abundant limestone/calcite, grog and quartz plus minor trace amounts of microline, plagioclase feldspar and tourmaline. Rock clasts are very rare, but include sandstones, one of which carries fine-grained and volcanic clasts. Cellular plant material is present within the pot. Limestone and single calcite crystals comprise the main temper. The limestone is fossiliferous with bryozoan and crinoid debris set in a micrite matrix. The limestones have been slightly dolomotized but extensively recrystallized so that coarse-grained calcite (sparite) is the main cement to the limestone. Dark-orange, rounded-to-irregular areas of very clean clay, carrying small quartz and muscovite plus rare feldspar but no carbonate, are interpreted as intentionally added grog. Locally the sherd has an opaque rim.

There is no doubt but that this belongs to Peacock Group B1 (Peacock 1968) and his description could equally apply to this sherd. The small clay balls seen in the clay by Peacock are also present but should not be confused with the much larger grog fragments.

The origin of the Wroxeter Palaeozoic-limestone-tempered ware

Ten further samples were selected for more detailed analysis. These came from a range of contexts in Lining Hole 12: five from context 6544 (samples 6-10) and one from context 6540 (sample 4), both in phase X1; two from contexts in Phase X2 (6521, sample 2; 6531, sample 3); and two from modern layers, Phase Z (samples 1 and 5). Most probably relate to the vessel deposited in 6544, other vessels may be represented. Ten thin sections were made and carbonate-stained. All ten are tempered with a crinoidal-bryozoa packstone (fossiliferous limestone) that compares well with the description by Peacock (1968). Peacock describes his B1 ware types as tempered with fossiliferous Palaeozoic limestone, and notes that the pots have clay clasts, sandstone plus rare hornblende, epidote and feldspar.

The present material comprises pots that are tempered with a crinoidal-bryozoa-shelly packstone in a clay that has widespread, rounded to elongated clay/mudstone clasts that vary in colour from green-brown to deep orange-red. Trace amounts of epidote (samples 1, 9, 10), zircon (samples 1, 2, 4, 5, 9) and a coarse-grained, green tourmaline (samples 4, 6, 8, 9) are present but hornblende was not recognised. Minor to trace amounts of potassium feldspar are common and present in all pots, except for samples 4 and 7, and plagioclase is present (samples 1, 2, 4, 6, 10). Non-carbonate, non-mudstone clasts are rare but include metamorphic quartz (sample 5) and acid igneous rocks (samples 1, 2, 4).

The limestone in all the pots is very similar and probably has come from the Much Wenlock Limestone Formation of Silurian age. This crops out from Usk in South Wales to Walsall in the West Midlands but is especially well developed along the

Malverns and Wenlock Edge. It is not possible to provenance the temper more specifically than this at the moment, but a broader-based study is to be continued.

A note on the petrology of two sherds of Severn Valley ware from the Wroxeter Pipeline excavations
by David Williams, Department of Archaeology, University of Southampton

Both bodysherds are in a hard, smooth, fairly fine-textured somewhat vesicular fabric. When viewed in fresh fracture under a binocular microscope [x20], some of the vesicles can be seen to contain carbonaceous material, others display organic striations on the sides of the voids. Sherd 1 (WST99 TP12 [6521] SVORGR 905) is light grey in colour [between Munsell 10YR 7/1 and 6/1] while sherd 2 (WST99 TP12 [6541] SVORGO 003) is pale brown [10YR 7/3-7/4] with a grey central core.

Both sherds were found to have a very similar fabric when viewed in thin section under the petrological microscope. The most common non-plastic inclusions are frequent, moderately well-sorted subangular to subrounded quartz grains, mostly monocrystalline in texture and generally under 0.30mm in size but with a few slightly larger grains, set in an anisotropic clay matrix. Flecks of muscovite mica are common. Also present are a few small pieces of a quartzose sandstone, a few small discrete grains of plagioclase felspar, some clay pellets and a little opaque iron oxide. Scattered throughout are a number of voids of variable shape and size but often elongate or broad and tabular-shaped. In a few of these voids pieces of burnt carbonaceous material can still be seen indicating that they once held organic material which has burnt out during the original firing of the pottery. Although not an identical fabric, these two sherds bear comparison with Severn Valley Ware sherds from Metchley Roman Fort previously examined by the writer and also pottery from the Severn Valley Ware kiln at North End Farm, Malvern Link. Both sets of material also contained conspicuous organic tempering.

3.3 The samian pottery
by Steven Willis, University of Durham

Introduction
A total of 69 sherds of samian pottery (*terra sigillata*) recovered during the works were submitted to the author for identification, dating and reporting. The sherds weigh a total of 538g, have an RE (rim equivalent) of 1.60, and derive from *c* 65 vessels. The material was recovered, in varying quantities from 12 of the investigated Lining Holes, these being Holes 1, 2, 4, 5, 6, 11a, 12, 14, 15, 16, 17, 19. The amounts of samian recovered were modest in all cases (*see* Appendix 1). However, a proportion of the sherds were usefully stratified from the point of view of establishing chronology. In addition, the collection provides useful evidence for activity from a range of locations across the site, many of which have seen little previous archaeological work, or were investigations have not resulted in publication.

The recovered samian, collectively, has a potential date range of *c* AD 40-260 (and a minimum range of *c* AD 50-225). In other words it covers virtually the whole of the period during which samian was imported into Britain. Most of the main sources of the ware are represented and a range of forms occur. The sherds are well collected and the assemblage is integral and complete. With few exceptions the sherds are small with

low average weights, indicating considerable fragmentation. However, the sherds are otherwise in an unusually good state of preservation, with no evidence of chemical weathering, and with significant abrasion limited to a very few sherds. Sherd surfaces have retained their glossy quality, and in some cases remain highly lustrous. Despite the fragmentation it has been possible to identify a very high proportion of sherds to vessel form. Not only are the numbers of sherds recovered per Lining Hole small, but, further, none of the contexts, bar context 3013 in Hole 5, yielded more than a few sherds. The meagre numbers involved, while directly explicable given the limited nature of the works, diminishes the potential for quantitative analyses. Two stamps are represented and five items have been selected for illustration (Fig. 23).

Discussion of the Samian pottery

To begin with the samian from each Lining Hole is summarised and its significance noted.

Lining Hole 1
Seven samian sherds were collected during this intervention (*see* Appendix). Three sherds of Les Martres ware (*c* AD 100-130) present provide some guide to the date of the stone founded building of **Phase Y** encountered at this location. Two sherds came from the construction deposits 1015 and 1009 associated with this structure. The third sherd (1g) is recorded from layer 1017, at the top of the sequence of **Phase X**, which suggests the layer may not have been deposited until the start of the second century, though this small item could be intrusive within this layer. The absence of Lezoux sherds, which are relatively frequent finds amongst Hadrianic and later deposits at Wroxeter, *in itself* implies a date for the construction of this building in the early second century AD, before say *c* AD 130. The modern contexts 1000 and 1001 collectively yielded four sherds of Lezoux samian from three vessels (*see* Appendix).

Lining Hole 2
Only two small samian fragments were recovered from this hole. Both came from the fourth stone and cobble surface, 1506, and date to *c* AD 120-200 (*see* Appendix).

Lining Hole 4
Four small sized sherds of samian were forthcoming at this location (*see* Appendix). The probable colluvial layers 2508 and 2509 contained one and two sherds of La Graufesenque samian respectively, dating to the first century AD. At the top of the sequence a sherd of Lezoux samian (*c* AD 120-200) came from 2500.

Lining Hole 5
A group of some 20 sherds of samian came from the works at this point (*see* Appendix). Appropriately the earliest level investigated, layer 3024, contained the earliest samian, in the form of two sherds from decorated La Graufesenque bowls dating to *c* AD 50-90 and *c* AD 70-100. From the lens 3023 above, came sherds from La Graufesenque and Les Martres cups collectively spanning the late first and early second centuries AD.

Fourteen sherds of samian came from the spread context 3013. This was the largest group of samian to come from a single context during the pipeline works. The context as a whole produced a total pottery group of 56 sherds (564g; with a rim equivalent of

1.23). This deposit appears to be Antonine, on the basis of the samian and coarse pottery, though it may continue into the early third century; the single sherds of La Graufesenque and Les Martres ware present are presumably residual. Amongst the remaining samian sherds a variety of plain and decorated forms are represented including Drag. 18/31, 18/31R, 31, 33 and 37. Including the two likely residual items (9g) samian comprises 18.8% of the pottery from this context by weight, and 33.3% by EVE based on rim equivalence. These are very high proportions even for a major civil centre in Roman Britain (cf. Willis 1998, tables 1 and 2), and are of potential significance, as high levels of samian amongst pottery groups are often associated with high status occupation. It is possible that these unusual proportions may be a function of the comparatively modest size of the group, though equally they may relate to the presence of a high status building or activity nearby; alternatively they may perhaps arise from a specific event. The average sherd weight for this group of samian sherds is 7.6g, indicating that it is considerably fragmented, if not exceptionally so.

Lining Hole 6
Three sherds of samian were recovered. These pieces came from the post-medieval/modern layers encountered at this previously disturbed point. All three items were from Lezoux vessels dating to *c* AD 120-200.

Lining Hole 11a (Fig. 23.1)
One sherd was forthcoming from the works, this being a body sherd from a La Graufesenque, Drag. 37, *c* AD 70-100.

Lining Hole 12
This trench produced the largest selection of samian from the pipeline operation, with 25 sherds being collected. In large part, of course, this comparatively large tally is a function of the scale of the works undertaken at this point. A total of nine stratified contexts yielded samian. Overall *c* 23 vessels are represented (*see* Appendix). This group constitutes something of a microcosm of the samian pottery consumed at Wroxeter in terms of the variety of types and sources present (Table 4). The group has a date range of *c* AD 40-225, covering, therefore, much of the period during which samian was imported into Britain. Unfortunately it seems likely that most of the samian is residual within the contexts from which it was recovered.

No examples of samian were associated with the earliest activities of sub-phase X1. From sub-phase X2 though, came several sherds of South Gaulish ware, dating to *c* AD 40-100. Context 6526 produced a small La Graufesenque base sherd *c* AD 40-100, while 6541 contained Claudio-Neronian and Flavian La Graufesenque items. Whilst context 6505, produced a rim from a La Graufesenque Drag. 15/17, again of Claudio-Neronian date, later Lezoux and Rheinzabern sherds also occurred (*c* AD 120-175 and *c* AD 150-225, respectively). If not intrusive, the latter two items are likely to be significant for the dating of the building represented by F1107 / 6522, which is interpreted as being subsequent to the deposition of context 6505. Collectively these La Graufesenque sherds, together with others from later deposits encountered in this investigation (including a Claudio-Neronian Drag. 18), are amongst the earliest examples of this ware class from Wroxeter. In this instance they add to the evidence of the coarse ware pottery in indicating early activity in this vicinity. These early samian sherds, indeed, seem quite likely to relate, on current information, to occupation in the

vicus of the fortress. However, the possibility that they relate to pre-military occupation cannot yet be ruled out.

Table 4: The Composition of the Samian from Lining Hole 12: Numbers of Types Represented

Form Type / Source	South Gaulish	Central Gaulish: Les Martres	Central Gaulish: Lezoux	East Gaulish
Cups:				
Drag. 24/25	1			
Drag. 27	1		1	
Drag. 33			2	
Unidentified Cup form	1			
Decorated Bowls:				
Drag. 30 or 37			1	1
Drag. 37	2			
Plain Bowls:				
Drag. 31R				1
Other Bowls:				
Unidentified Bowl form			1	
Bowls or Dishes:				
Indeterminate			1	
Dishes:				
Drag 18/31		3		
Drag. 18/31, 18/31R, or 31			1	
Drag. 31			1	
Possible Beaker:				
Indeterminate			1	
Platters:				
Drag. 15/17	1			
Drag. 18	1			
Totals:	**7**	**3**	**9**	**2**
(Form not identifiable)	(1)	(1)		

From one of the floor foundation deposits associated with the building represented by F1107 / 6522 (sub-phase Y1), context 6535, came sherds from three second century vessels.

Second century Les Martres and Lezoux ware are, in each case, represented by several vessels (cf. Appendix and Table 4). The proportion of the samian assemblage from this investigated area formed by Lezoux ware is, however, less than at some other locations at Wroxeter, where it is significantly more frequent *vis-à-vis* other sources. The nature of the deposits at this location may well be a factor accounting for this difference.

Lining Hole 14

A solitary sherd of samian was recovered from Hole 14 (*see* Appendix), this being a sherd from a Lezoux dish, *c* AD 120-175, from 7501.

Lining Hole 15

Three samian sherds were present, all coming from deposits of phase Y (Roman or Medieval) from within what is believed to be the town ditch. From the lowest layer investigated (8004) came a body sherd from an East Gaulish (Trier) bowl, *c* AD 150/160-230. From above this deposit came a Lezoux Drag. 37 sherd, *c* AD 135-170, from 8006, and a further East Gaulish item, from 8005, probably part of a Drag. 30 and dating to *c* AD 150-230.

Lining Hole 16

Only 1 samian sherd derived from this intervention, this item belonging to context 8507, phase Y (Roman or Medieval). This piece might be of little value

chronologically, but is of intrinsic interest in being an early example of a Drag. 18/31R in La Graufesenque fabric and dating to *c* AD 90-110.

Lining Hole 17
One samian sherd was recovered, being a rim from a Lezoux Drag. 31 *c* AD 150-200, from context 9000.

Lining Hole 19
Again a single sherd of samian came from this intervention. The item in question was a small body sherd of La Graufesenque ware, *c* AD 40-100, from 10004. Although Lining Hole 19 lay to the north of the area of the fortress and enclosed town, first century South Gaulish La Graufesenque samian is previously recorded from this area; examples were, for instance, forthcoming from the Hinterland Project surface collections (Willis, forthcoming b).

Catalogue of drawn sherds (Fig. 23)

1 Lining Hole 11a, T.P. 11A Pipe Fill
Body, SG La Graufesenque, Drag. 37, 11g, *c* AD 70-100. A section of a narrow basal wreath is present, comprising a fine trifid arrangement; the motif occurs as an upper band of a wreath illustrated by Hermet (1934, pl. 47 No. 33).

2. Lining Hole 12, Context 6524
Body, SG La Graufesenque, Drag. 37, 6g, *c* AD 70-100; burnt. A section of a basal wreath is present, comprising short s-shaped gadroons, a common motif on this form during the Flavian period (cf. Hartley 1985, fig. 98 D27).

3. Lining Hole 15, Context 8006
Body, CG Lezoux, Drag. 37, 10g, *c* AD 135-170. This sherd is from a small bowl of Cinnamus ii; the ovolo is quite large and double-bordered with a rounded end; the tongue is corded with a terminal, turned to the left, in the form of a blurred rosette; below is a bead border; the ovolo is unequivocally Stanfield and Simpson's Cinnamus ii ovolo 2 (1958, 264, Fig.47 No.2; 1990, 304); underneath the ovolo band is part of a figure with a staff, apparently an O.583 variant; to the right of this figure is an eight petalled rosette, not in Rogers (Rogers 1974), nor the normal rosette used by Cinnamus ii; although the decoration is not crisp, there is a high gloss finish typical of the bowls of this producer.

4. Lining Hole 1, Context 1009
Body, CG Les Martres, form not identifiable though possibly from a cup, 1g, *c* AD 100-130. A fragment from a basal stamp is represented:]T[, there is an indication that the T is followed by IS and there is hence a possibility that this is a stamp of Lentiscus (cf. Terrisse 1968, pl. LIII; cf. Dannell 1971, 308, No.53); an alternative possibility is that the stamp reads]LV[retrograde.

5. Lining Hole 12, Pipe Trench
1 base sherd and a conjoining body sherd, CG Lezoux, probably Drag. 33, 17g, BE: 0.20, Diam. 60mm, *c* AD 160-200. Most of a stamp is present: CATVLL[, that is Catullus ii of Lezoux, whose products are uncommon in Britain; the Leeds Corpus of Samian Stamps records stamps of this potter from Halton Chesters, South Shields and

Vindolanda, none of which are published; the stamps are particularly associated with form 33 (Brenda Dickinson, pers. comm).

General Discussion

The 69 samian sherds forthcoming from the works amount to *c* 9%, by sherd number, of the pottery recovered. They contribute some important data for establishing the chronology, sequences and phasing of the contexts encountered, when considered alongside any other dating indicators. Appropriately there is a good correspondence with the dating evidence provided by the coarse wares (Jane Evans, this volume above).

Although the overall size of the samian assemblage from the pipeline works is small it nonetheless provides a useful random 'snap-shot' of samian consumption at Wroxeter which may be compared with the samples gathered as part of the Hinterlands Survey, as well as from the excavations of the later 20th century. Whilst there is, of course, already much samian published from this major centre from older work, it is particularly advantageous to have samples from a variety of locations collected using controlled techniques. There is some scope, the small size of the groups notwithstanding, for using modern analytical approaches, an aspect which studies of samian from Wroxeter have, in the past, lacked.

That the samian recovered spans a broad date range, with a variety of sources represented, is not surprising for a major centre such as Wroxeter and the reflects the pattern of previous assemblages from the site (e.g. Wild 1997). The assemblage verifies trends in samian supply to Wroxeter but its particular significance lies in the details of its incidence.

All of the samian dating to the first century AD is South Gaulish La Graufesenque ware (which accounts for *c* 27% of the pipeline samian by sherd number). Examples were forthcoming from six of the Lining Holes: 4, 5, 11a, 12, 16, and 19; in other words, the findspots were widespread. These finds in themselves demonstrate extensive activity at the site during the middle and late first century and add helpful detail to our understanding of the chronological development of the site, especially since in virtually all cases they come from locations which have seen no previous archaeological work. The bulk of these La Graufesenque items came from Holes 4, 5 and 12. The material from Hole 12 includes at least three particularly early pieces (pre-Flavian) belonging to the conquest era *c* AD 40-70. These pieces are contemporary with the earliest samian known from the site; one at least is Claudian. Unfortunately the stratified occurrence of these early pieces of samian in 12 is not particularly illuminating. Their presence is consistent with a series of coarse pottery types recovered from the earliest deposits within this area which seem likely to date to around the mid first century AD (see Evans, above). It seems most likely that these items and deposits relate to the vicus of the fortress during its early years. Nonetheless, the possibility that some of these items of samian relate to pre-Roman military occupation at Wroxeter, perhaps of high status, cannot be ruled out on current knowledge. Claudian and Neronian samian is known, for instance, from a number of sites in Yorkshire which at the time of its arrival will have been outside of the conquered province (e.g. Claudian samian from Redcliff - North Ferriby, East Yorkshire (Creighton and Willis forthcoming); and Claudio-Neronian samian from the North Yorkshire sites of Stanwick (Haselgrove *et al.* in press), Melsonby (Fitts *et al.*

1999) and Scotch Corner (Abramson 1995)). There is a small window of possibility at Wroxeter, as regards the samian: vessels could have arrived at a site at this location in the period *c* AD 40-45/50, prior to the advent of the military presence.

Specifically Flavian samian items were also recovered from several Holes, being more numerous than the pre-Flavian items. Several decorated La Graufesenque vessels are represented, though not necessarily by decorated sherds (Fig. 23. 1 & 2). A variety of plain ware forms are represented. Amongst the latter the only item of particular note is the Drag. 18/31R dating to *c* AD 90-110 which is an early example of the form in La Graufesenque fabric.

There are nine sherds of Les Martres-de-Veyre samian amongst the pipeline assemblage, from eight or nine vessels, dating to the early decades of the second century AD. Sherds came from Holes 1, 5 and 12. The spatial incidence of these items is unsurprising. Although the tally (*c* 13% of all samian sherds from these works) seems small this figure has to be evaluated in light of the fact that the overall level of samian supply to Britain at this time appears to have been comparatively low. In fact the presence of Les Martres products in this instance compares well with levels at other sites occupied during this period and may imply that Wroxeter had a good market 'pull' at this transitional time. All identifiable forms in this fabric are plain wares, comprising cups and dishes.

Lezoux samian, of Hadrianic-Antonine date is the most prominent ware amongst these samples, amounting to *c* 50% of the sample. A predominance of Lezoux ware is as would be predicted bearing in mind the location of the excavated Lining Holes in terms of the overall morphology and chronology of Wroxeter. If anything though the frequency of the ware *apropos* La Graufesenque and Les Martres wares is lower than might be expected, for amongst the samples from the immediate hinterland (Willis, forthcoming b) and the Baths Basilica (Wild 1997) Lezoux products form very high proportions of the collected samian. Presumably this pattern is a function of the small size of the present sample and of the location of the investigated areas. It is noteworthy that the later Antonine period does not appear particularly well represented amongst the present sample; form 31 dating to after *c* AD 150 is widely present but Drag. forms 31R, 38 and 45 and Walters 79, for instance, are essentially absent.

There are several East Gaulish vessels represented (seven sherds from as many vessels). These items come from the major East Gaulish sources of Argonne, Rheinzabern and Trier. East Gaulish samian was collected from Lining Holes 5, 12 and 15. These pieces are of particular note for their date (Antonine to 3rd century), but also since it used to be believed that East Gaulish wares were absent or very rare in western Britain away from ports. Clearly Wroxeter as a major civitas focus will have exerted a centripetal effect, though vessels from East Gaul are also consistently present at sites of lower status in the region. It is now becoming clear that these wares reached both Wroxeter and the West Midlands in some numbers. It may indeed be that the proportions present were only marginally lower than for much of the rest of the Province. Specific research is required to clarify regional levels of supply of these fabrics (Willis 1997). The available samples from Wroxeter are not ideal for the purpose of establishing the actual frequency of East Gaulish samian at the site, being either very small (as here) or residual. Amongst the present sample East Gaulish ware accounts for 10.1% of the samian by sherd numbers. Of the samian from the immediate

hinterland 6.6% is East Gaulish, again by sherd numbers (Willis forthcoming b). The proportion of samian from this source from the 1966-90 Baths Basilica area by sherd numbers, where all of the samian is considered residual and, to boot, heavily trampled, is a mere 1.4% (Wild 1997).

The frequency of decorated to plain ware types amongst samian groups has been shown to be a good indicator of site character and identity (Willis 1998). Again the present assemblage is far from ideal for such analysis, being so small. Something, however, may be extracted from the two larger groups from Holes 5 and 12. Taking the second century samian from Hole 5 as a sample (all of it Central Gaulish) gives a ratio of 2 decorated forms to 10 plain (17% : 83%). The equivalent figures for Hole 12 (11 Central Gaulish vessels, 1 second century East Gaulish) are 3 decorated forms to 9 plain (25% : 75%). These figures accord closely with those for other major civil centres in Britain (Willis 1998, table 3), for which the average percentage of decorated vessels amongst stratified samian groups is 26%. Finally the overall range of samian forms present is reasonably wide, as one would expect of a site of this standing.

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Discussion of the pottery by Lining Hole
by C. Jane Evans

Lining Hole 1
Most contexts in Lining Hole 1 produced only one or a few sherds. The large Phase X pit produced 18 sherds from the two lowest fills (1025, 1026), and two from the upper fills (1016, 1017). The pottery indicated a broadly late-first to early-second century date. Coarse wares included Severn Valley ware (SVOF, SVR), Wroxeter white-slipped ware (WWOC) and a single body sherd in BB1. The only datable forms came from the upper fills. These comprised two beakers, similar to examples published from military and early-civil contexts at Wroxeter (Timby et al. 2000, fig. 4.52.BK4.1, fig. 4.53.BK7) and a fragmentary cup in Central Gaulish samian, dated AD 100-130. The phase Y construction trench also produced Central Gaulish samian dated AD 100-130, a slightly burnt Drag 18/31 bowl from 1015, and a stamped cup (Fig. 23.4) from the sealing layer 1009. The dating evidence from the stratigraphically-later Phase Y contexts was quite poor. However two fills, 1006 and 1002, produced typically-second-century BB1: a bowl with a flat, out-turned rim (Seager Smith and Davies 1993, fig. 123 type 22) and a sherd from a jar with acute-cross-hatch burnish. Pottery from the modern layers provided a useful indicator of the end of Roman activity on the site. The samian included sherds dated AD 120-200 and AD 150-200, and the coarsewares included typically-second-century BB1. Nothing diagnostically later than this was noted. A small fragment of Dressel 20 amphora was recovered from the topsoil, but this could not be closely dated.

The only other contexts that produced datable pottery were 1002, 1006 and 1000, all of which contained sherds of BB1. Context 1006 produced a typically-second-century bowl rim, and context 1000 a bead-rim bowl or dish of a type dated to the latter half of the second century.

Lining Hole 2
The dating evidence from this Lining Hole was very poor. The fourth and last of the stone and cobble surfaces (1506) produced two sherds of Central Gaulish samian, both dated to AD 120-200, while the topsoil (1500) included a single sherd of BB1, indicating a *tpq* of *c* AD 120.

Lining Hole 4
The pottery from Phase Y contexts in Lining Hole 4 dated to the first century. Layers 2509 and 2508 produced sherds of South Gaulish samian, including a Drag. 18 platter dated AD 40-100, and two further sherds dated AD 40-100 and AD 70-100. The coarse wares comprised Severn Valley ware (SVR, SVOF) and Wroxeter sandy wares, including white-colour-coated ware (WWO, WWR, WWOC). The only identifiable forms in the coarse wares were types associated with the Wroxeter military assemblage: a carinated bowl and a Hofheim-type flagon (Timby et al. 2000, fig. 4.64.B1.2, fig. 4.49.F1.1). The Roman pottery from modern layers included Central Gaulish samian dated AD 120-200 and a BB1 dish, broadly dating to the second-to-fourth century (Seager Smith and Davies 1993, fig. 123. type 20).

Lining Hole 5
Lining Hole 5 produced the second largest group (Table 1) and, consequently, some good dating evidence. The lowest level, 3024, produced a Drag. 30 bowl dated AD 50-90 and a Drag, 37 bowl dated AD70-100, both in South Gaulish samian. The associated coarse wares comprised Severn Valley ware (SVO, SVR) and Wroxeter sandy wares (WWR, WWOC). The only coarse ware forms were a local copy of samian form Drag. 37, a type recorded elsewhere at Wroxeter (Timby et al. 2000, fig.4.65.B7.2), and sherd from a carinated bowl with barbotine decoration (Fig. 22.15). The black organic layer overlying this (3023) had a *tpq* of AD100-130, provided by a Central Gaulish Drag. 33 cup. The coarse wares included a sherd of BB1, together with more locally produced wares (SVOF, WWR). The cesspit on the north side of the trench (F408) contained no pottery. However, the pit cut into it (F407) produced 15 sherds, from the upper fill (3018). Twelve of these were from a BB1 cook pot with characteristically second century acute cross-hatch burnish.

The largest group of pottery, 57 sherds, came from the sub-phase Y2 levelling dump (C3013). Sherds of East Gaulish samian provided the *tpq* for this levelling. These included Argonne Drag. 31 bowl dated AD 150-230, a fragment from a bowl dated AD 150-250, and a sherd of Trier samian dated AD 150-260. The coarse wares were consistent with this date. BB1 now represented 11% of the phase assemblage. Other new fabrics represented were Wroxeter mortaria (MWWO, MWWR) and Nene Valley colour-coated ware (NVCC1). Diagnostic forms included a BB1 jar or beaker, dating to the second half of the second century (Seager Smith and Davies 1993, fig. 122 type 9), a third-century-type BB1 cook pot (ibid. fig. 122 type 2/3; Timby et al. 2000, fig. 4.55.JC3.6/3.7), and an Antonine raetian mortaria (Timby et al 2000, fig. 4.73.M6.3).

The dating evidence for Sub-phase Y3 was not so good. The dump of silty clay produced Central Gaulish samian dated AD 150-200, and Mancetter Hartshill mortaria dating to at least AD 140/150.

Lining Hole 6

This produced a small group of Roman pottery, all from post-medieval or modern contexts. It was interesting, however, as one of the few groups with evidence for late-Roman activity. This was provided by a typically-third-to-fourth-century pulley-rim jar in Severn Valley ware (Timby et al. 2000 fig. 4.57.JN4.7; Webster 1976, fig. 3.A9) and two sherds of late-Roman shelly ware (CALC), all from the topsoil (3500, 3504). Late-Roman shelly ware is associated with late-fourth century or later activity at Wroxeter (Symonds 1997, fig. 366, fig. 372). Residual sherds of Central Gaulish samian dated AD 120-200 and AD 160-200 were mixed with modern brick in the earliest layer (3505) and included in the topsoil (3504).

Lining Holes 8C, 11A, 14 and 16

These all produced very small quantities of pottery. A sherd of BB1 provided a *tpq* of *c* AD 120 for any Roman activity associated with Lining Hole 8 (4503). Lining Hole 11 produced a decorated sherd of South Gaulish samian (Fig. 23.1), dated to AD 70-100. Lining Hole 14 produced four sherds all from 7501. These included a sherd of Central Gaulish samian dated AD 120-175, a fragment from a late-third-to-fourth-century BB1 jar, and a sherd of amphora from Southern Spain. Lining Hole 16 produced mainly medieval or post-mediaeval pottery. The only Roman sherd was in South-Gaulish samian, dated AD90-110, found in the bottom fill of circular feature F1503 (8507).

Lining Hole 12

By far the largest, and most interesting, group of pottery came from Lining Hole 12 (Table 5). The assemblage, which represented more than half of all the Roman pottery recovered (Table 1), provides significant new evidence for the character of the earliest-Roman activity at Wroxeter.

Table 5: Trench 12, pottery by Phase

Phase	Qty.	% Qty.	Wt. (g.)	% Wt.	Rim EVE	% rim EVE
X1	104	20	2734	33	102	26
X2	143	28	1898	23	134	34
Y1	75	14	1837	22	50	13
Y2	25	5	356	4	10	2
Z	173	33	1501	18	101	25
Total	520		8326		397	

Of the two earliest features, one (F1111) produced 96 sherds of pottery, including a complete Malvernian tubby cooking pot (MALVH, Fig. 22.3), and seventy-nine fragmentary sherds from a jar in Peacock's Palaeozoic-limestone-tempered ware (Peacock 1968, fabric B1; MALVB). The other (F1112) produced a much smaller assemblage of eight sherds, comprising Peacock's fabric B1, organic-tempered Severn Valley ware (SVORGR) and Severn Valley ware (SVOF, SVR). The presence of Peacock fabric B1 is of particular interest. This is a native, Iron Age fabric that appears to go out of production after the conquest period. At Beckford, Worcestershire, for example, it is characteristic of assemblages from the Middle Iron Age through to the Late Iron Age/conquest period (Ford and Rees 1984, phases B-F), but is not associated with contexts dated to the mid to late-first century (ibid., phase G). It is common in conquest period groups from *Ariconium*, Herefordshire, again declining markedly in the late 1st century, and Willis notes a similar pattern from Alcester, Warwickshire (Willis forthcoming a, 85). Other Roman sites where it has been noted include Droitwich, where it occurred in conquest period forms (Rees 1992 fabric 4.1, 48, fig. 26.19-22), and Kenchester (Tomber 1985, 119). At least three vessels in Palaeozoic-

limestone-tempered ware were noted from Lining Hole 12, two rims coming from phase X2 (Fig. 22.4, 11) and one from the topsoil, phase Z (Fig. 22.5). The presence of the Malvernian tubby cooking pot in a conquest-period context is also worthy of note. This particular form was originally attributed a Hadrianic or Antonine date (see catalogue for Fig. 22.3), although subsequent evidence has increasingly suggested a first-century origin. No samian was associated with phase X1, but samian from later contexts in Lining Hole 12 included sherds dated AD 40-55, AD 40-60 and AD 40-70, which could be contemporary.

Phase X2 produced a slightly larger assemblage of 143 sherds, in a wider range of fabrics. Much of the pottery was contemporary with the assemblage from Phase X1 and was probably redeposited. The largest groups came from a dump layer to the east of the trench (6541, 51 sherds) and the latest fill of a linear cut on the western side of the trench (F1105, 6521, 34 sherds). The former included typical Flavian-Trajanic coarsewares, for example a reeded-rim bowl (Timby et al. 2000, fig. 4.57.B13.2) and a sherd from a rusticated jar (Timby et al. 2000, fig. 4.57.JM1.25/26), and a characteristically early jar with a deliberately blackened surface (Fig. 22.8). Further dating evidence was provided by two sherds of South Gaulish samian, a Drag. 37 bowl dated AD 70-90, and a Drag. 24/25 cup dated AD 40-60. The single sherd of Dressel 20 amphora could not be closely dated. The type has a wide date range, first appearing elsewhere in pre-Roman contexts but continuing in use through to the late-third century, and was used principally for transporting olive oil (Peacock and Williams 1986, 136-40). Layer 6521 was dominated by organic-tempered Severn Valley ware (90% by weight), occurring alongside Malvernian wares (MALVH, MALVB), Severn Valley ware (SVR) and a single sherd of BB1. The presence of BB1 is normally taken as an indicator of a *tpq* c AD 120, although it has been noted in earlier contexts elsewhere. This layer produced a number of the characteristically early forms illustrated below (Fig. 22. 2, 4, 6, 9 and 12), including the vessel with graffito (Fig. 22.10). The thin layer sealing this, 6538, also produced a sherd of BB1, possibly indicating a *tpq c* AD 120. The fill of the feature cutting this (6505), however, had diagnostically-later dating evidence, provided by an East Gaulish Drag. 31R bowl dated AD 150-225, a Central Gaulish Drag. 33 cup dated AD 120-175, and a sherd of Trier Moselkeramic dating broadly from *c* AD 180-250 (Tyers 1996, 138-9). Once again, residual pottery was well represented, including a sherd of Central Gaulish colour-coated ware, probably dating to the late-first or early-second century (Tyers 1996, 139-40), and a sherd of South Gaulish samian dated AD 40-55. Two lids are illustrated from this phase, neither of which were closely datable (Fig. 22. 13, 14).

Phase Y1 produced a smaller assemblage with a broadly second to early third century date. The dating evidence was provided by sherds of Central Gaulish samian dated AD 100-130, 120-140 and 120-200; by the presence of BB1, including some diagnostically-second-century types (Seager Smith and Davies 1993, fig. 123.types 22, 23), a second-to-third-century Severn-Valley-ware tankard (Webster 1976, fig. 7.E40; Timby et al. 2000, fig.4.77.TK2), and a sherd of Nene Valley colour-coated ware. Residual sherds were again present. These included a sherd of pre-Flavian Lyon colour-coated ware and sherds of eggshell ware (WHEG); a fragment from a South Gaulish Drag. 37 bowl dated AD 70-100 (Fig. 23.2), and the rim from a butt beaker (Fig. 22.1). Three sherds of Dressel 20 amphorae were noted, none of which were closely datable. The Phase Y2 assemblage, and the Phase Z modern layers, produced a similar range of residual pottery. A sherd of BB1 with obtuse-cross-hatch burnish was

found in the layer of silt overlying features in Phase Y2 (C6504). This indicated a *tpq* of *c* A.D. 223-5. The latest dating evidence came from a tankard of a type dated by Webster to the fourth century (Webster 1976, fig. 7E44; Timby et al. 2000, fig. 4.77.TK4), found in one of the modern layers (6501). Also present was a residual sherd of stamped samian, dated AD 160-200 (Fig. 23.5).

Fig. 22 The Roman pottery: 1-14: Lining Hole 12

1 BKA7.05. Butt beaker, with horizontal burnish and grooves on the neck. Mainly reduced, but with a patchily oxidised external surface. This is a form with pre-conquest origins, produced in the first century but becoming less recognisable in British assemblages after the Flavian period (Timby et al. 2000, fig. 4.52. BK1). It is not one of the typical Severn valley ware forms identified by Webster (1976), but is recognised elsewhere as an early Severn Valley ware type (Timby 1990, fig. 4.49). Similar forms, also in organic-tempered Severn Valley ware, are noted elsewhere in Shropshire at the Flavian-Trajanic fort and *vicus* at Brompton (C J Evans forthcoming). SVORGO/R. Phase Z, pipe trench F1110, 6542

2 J/BK. Body sherd from a butt beaker, decorated with a band of fine, diagonal linear-burnish bordered by a cordon and grooves. Predominantly oxidised, but with a reduced core and a variable external surface. Possibly from the same vessel as number 1 above, although not joining. SVORGO/R. Phase X2, F1105, 6521

3 JK22.04. Complete tubby cooking pot, with near-upright walls, decorated with vertical, linear burnish. There is some sooting externally, and the internal surface near the rim is pock marked, perhaps as a result of use. The form is paralleled by Peacock's vessels 1-8, dated to the Hadrianic-Antonine periods of the second century (Peacock 1967, 16-18, fig. 1). Over the past thirty years, however, the form has been noted in a number of first century contexts. It was the most common Malvernian type in the Flavian-Trajanic assemblage from Brompton fort and *vicus* in Shropshire (C J Evans forthcoming), and there are examples from pre-Flavian contexts at Metchley fort in the West Midlands (Greene et. al forthcoming; Hancocks forthcoming) MALVH. Phase X1, F1111, 6544

4 JK7.04. Jar or cooking pot with an everted rim, very abraded. Similar to types noted in the Late Iron Age and conquest period assemblage at Beckford, Worcestershire (Ford and Rees 1984, form 10), and at *Ariconium*, Herefordshire where they are dated *c* 70 BC – AD 75 (Willis forthcoming a, fig. 13.9). A similar vessel is published from the Wroxeter Baths Basilica (Symonds 1997, fig. 359.169). MALVB. Phase X2, F1105, 6521

5 JL7.02. Jar or cooking pot with an everted, slightly irregular rim. Abraded, but with evidence surviving for plain burnish inside and outside the rim. Similar to Beckford form 10.29 (op. cit.) and of a similar date to number 4 above. MALVB. Phase Z, topsoil 6500

6 JN1.01. Fragmentary rim from a narrow-mouthed jar with a slightly-beaded rim, a first- to second-century type (Webster 1976, fig.1.A1, 2; Timby et al. 2000, fig. 4.56.JN4.1). SVORGR. Phase X2, F1105, 6521

7 JN1.01. Narrow-mouthed jar with a slightly-beaded rim, similar in date to number 6 above. SVORGO. Phase X2, 6538

8 JN19.16. Fragmentary rim from a jar or handled flagon with a deliberately blackened, well-burnished surface. The sharp change of angle inside the rim is paralleled on one of the military jar forms found in very small numbers at Wroxeter (Timby et al. 2000, fig. 4.56.JN1.1). SVORGR. Phase X2, 6541

9 J. Body sherd from the shoulder of a narrow-mouthed jar, decorated with grooves and vertical linear-burnish. SVORGO. Phase X2, F1105, 6521

10 JL20.05. Necked jar, with overhanging rim. Decorated, with diagonal pattern-burnish on the shoulder, between areas of plain burnish that extend to just inside the rim. With graffito on the rim and shoulder (discussed below). This Severn Valley ware form was dated by Webster, on typological grounds, to the second-to-third century (Webster 1976, fig. 2.A7), and examples in Severn Valley ware have been attributed a similar date at Gloucester (Rawes 1982, fig. 3.39). The fabric of this example, however, is typical of the first or early-second century, and the form is paralleled by first-century storage jars produced in Savernake-type grey wares (Swan 1975, fig. 4.52). The form is noted in first-century contexts at *Ariconium*, Herefordshire (Willis forthcoming a, fig. 27.1-5) and Metchley fort, in the West Midlands (Green et al. forthcoming, fabric 7.2, fig. 35.JS3). Similar jars, many with graffiti, were also noted from excavations in Alcester's southern extramural area, where they were thought to be associated with a first-century store (see discussion below), and in first century contexts at Beckford, Worcestershire (Ford and Rees 1984, forms 18.6-18.9). These, and other large storage jars, were extremely rare in the military assemblage at Wroxeter; one related form is published but this is not an exact parallel (Timby et al. 2000, fig. 4.62. JLS2.11). SVORGR. Phase X2, F1105, 6521

11 JL7.01. Large, neckless storage jar with an everted rim, similar to Wroxeter type JLS1.11 (Timby et al. 2000, fig. 4.62). Abraded, but with evidence surviving of horizontal linear-burnish inside and outside the rim. The form is similar to types noted in the Late Iron Age and conquest period assemblage from Beckford, Worcestershire (Ford and Rees 1984, form 17), and Ariconium, Herefordshire (Willis forthcoming a, fig. 14.1). MALVB. Phase X2, 6531

12 BA1.01. Small, carinated bowl with a slightly concave profile and a slightly beaded rim. This is Webster's 'Iron C derived bowl' and is a classic early Severn-Valley-ware form (Webster 1976, fig. 9.H59, H60; Timby 1990, fig.4.42-4). It is noted in first century contexts at Beckford, Worcestershire (Ford and Rees 1984, form 20), *Ariconium*, Herefordshire (Willis forthcoming a, fig. 19.7) and Metchley fort in the West Midlands (Greene et al. forthcoming, fig. 37.B3). Examples in early Severn-Valley-ware fabrics are also known from Worcester (Darlington and Evans 1992, fig. 21.5), Droitwich (Rees 1992, fig. 29.20-27), and Alcester (Lee et al. 1994, fig.32.O.296-301). Broadly-similar carinated bowls are known from Wroxeter, but the published examples are more 'Romanised' in their fabrics and surface treatments (Timby et al. 2000, fig. 4.65, B3.42), as is the case with examples from Brompton fort and *vicus* (C J Evans forthcoming). SVORGO. Phase X2, F1105, 6521

13 LA16.01. Lid with a splayed rim. Not a closely datable type, but found in military and second-century contexts at Wroxeter (Timby et al. 2000, fig. 4.78.L3). SVO. Phase X2, 6541

14 LA19.2. Lid with a thickened, triangular rim. Not a closely datable type, but found in military and second-century contexts at Wroxeter (Timby et al.2000, fig. 4.78. L2.1). WWO. Phase X2, 6536

Fig. 22 The Roman pottery: 15: Lining Hole 5

15 BA. SVO. Body sherd from a carinated bowl with trailed, barbotine decoration. A number of carinated bowls were produced at Wroxeter. They are initially associated with the military deposits, but date broadly to the late-first to second century (Timby et al. 2000, figs. 4.64-5, types B1-B4). Phase Y, 3024

Lining Hole 15

Lining Hole 15 produced another small group of pottery. The lowest fill in Phase Y (8006) contained a Drag. 37 bowl in Central Gaulish samian, dated AD 135-170 (Fig. 23.3), together with a number of Severn-Valley-ware forms broadly dating to the second or third century (Timby et al. 2000, fig. 4.61.JW2.2, JW2.3; fig. 4.66.B9). The layers overlying this had a *tpq* of AD 150-230 (C8005), indicated by a sherd of probable East Gaulish samian, and AD 150/160-230 (C8004), indicated by a sherd of Trier East Gaulish samian. The latter context also produced part of the neck from a southern Spanish amphora, which probably contained some form of fish-based product (David Williams, pers. comm.). The overlying layer (8003) included the grooved-hammerhead rim from a Mancetter Hartshill mortarium, probably dating to the third century (Timby et al. 2000, fig. 4.74.M9.1).

The significance of the Roman pottery from the Pipeline excavations

by C. Jane Evans

Excavations on the line of the pipeline produced a number of small assemblages. All but two comprised less than 50 sherds and six produced less than ten sherds. For the most part, therefore, the significance of the pottery lies not in the significance of the individual assemblages, but in the contribution they make to wider research into Wroxeter's chronological development and morphology. The pottery adds to a growing body of data, excavated and recorded to modern standards, that can be analysed in future research using modern techniques. The assemblage from Lining Hole 12, however, has a wider significance. It supports the interpretation of this area as the *vicus*, and provides valuable new evidence for the nature of the earliest-Roman activity at Wroxeter. This is an important contribution to research into 'Romanisation' in this region, which, because of the importance of Wroxeter as an archaeological resource, has a wider, national significance. It highlights the potential of small-scale excavation to tackle questions that remain unanswered, despite the wealth of evidence published from Wroxeter.

The presence of Palaeozoic-limestone-tempered ware (Peacock 1968, fabric B1) in the Lining Hole 12 assemblage indicates a conquest-period date. This is supported by the some of the samian residual in later contexts, which Willis thought could be contemporary with the earliest military activity at Wroxeter, or could even predate it (Willis above). The presence of Palaeozoic-Limestone-tempered ware is not in itself entirely surprising. It is known to have been reaching Shropshire in the Iron Age, for example at The Berth (Peacock 1968, fig. 1, 424). In retrospect, it also appears to be present in small quantities in some of the published Wroxeter assemblages, although it has not been identified as such. Darling, in her report on the military and early-civil assemblage (Darling, in press), describes a simple, curved rim from a large jar in a coarse, oxidised fabric with calcareous inclusions, and a calcite-gritted, coarse, dark-

grey fabric, also represented by curved- rim jars. These have both been subsumed in the Wroxeter fabric series at NAT (Timby et al. 2000). A 'calcite-gritted Malvernian ware' is also described from the Baths Basilica excavations in a form similar to one of the vessels from Lining Hole 12 (Symonds 1997, 285, fabric CM1, fig.359.169).

It is the overall composition of the Lining Hole 12 assemblage that makes it quite distinct from any of the assemblages previously published from Wroxeter. The fact that none of the pottery appears to be locally made (Fig. 24a) is a marked contrast with the earliest military assemblage from Wroxeter. In the latter, the occurrence of non-local vessels, other than fine wares, is extremely rare, and only increases slightly even in the later-military and demolition periods (Darling, in press; Timby et al. 2000). The range of vessel types from Lining Hole 12 is also distinct. Darling notes that few storage jars were included in the military assemblage (Darling, in press; Darling in Timby et al. 2000) whereas these were common in Lining Hole 12 (Fig. 24b). It seems likely that they were reaching the site as containers for some other commodity. The jars in organic-tempered Severn Valley ware, for example, are similar to the widely distributed types in Savernake ware (Swan 1975; Hodder 1974).

The pottery from Lining Hole 12 perhaps provides a glimpse of the native, pre-Roman trade contacts that were rapidly superseded by military supply mechanisms or, alternatively, represents the 'native' vessels used by an early influx of civilians to Roman Wroxeter. Much of the pottery appears to come from the central-southern Severn Valley area, *Dobunnic* territory. The range of fabrics is, for example, similar to assemblages from early sites such as *Ariconium*, Herefordshire (Willis forthcoming a) and Beckford, Worcestershire (Ford and Rees 1984). These include vessels with diagnostic Malvernian inclusions (MALVH) and vessels in organic-tempered Severn Valley ware (SVORGO/R). The organic-tempered storage jar with graffiti (Fig. 22.10) is of particular interest. A group of similar jars was found on a first-century settlement in the southern extramural area at Alcester (J Evans et al. 1994, 124-30). Significantly, perhaps, the same site also produced three *Dobunnic* coins. Other finds included four early iron brooches, sherds of amphorae, stylii and seal boxes. The site was thought to have been associated with storage and trade. Vessels in Peacock's fabric B1 (MALVB) are also typical of early sites in the central-southern Severn Valley area. They are traditionally attributed to a source in the Malvern or Woolhope area (Peacock 1968, 422; Morris 1983; Willis forthcoming). It should be noted, however, that this ware may now need to be reassessed. Petrographic analysis of samples from this site (Ixer above) found no diagnostic Malvernian inclusions in these sherds, and indicated another possible source closer to Wroxeter, at Wenlock Edge. This is an hypothesis, however, that needs further examination. The proportion of Malvernian pottery in the Lining Hole 12 assemblage is high, even if the Palaeozoic-limestone-tempered ware does not come from this source. This provides another contrast with the other early Roman Wroxeter assemblages studied. Evidence had previously suggested that Malvernian wares only occurred in minute quantities before the second century, leading Darling and Timby to argue that this supply route was not active in the first century (Darling, in press; Timby et al. 2000).

These contrasts with the Wroxeter military assemblage, and the similarities with sites such Beckford and *Ariconium*, argue for civilian activity on the site. Defining the exact nature of this activity is beyond the scope of this report, and would anyway require substantially more evidence. This small site, however, opens up a whole new area of

debate on early-Roman Wroxeter. It would certainly be interesting to pursue more detailed analysis of the Palaeozoic-limestone wares. If the Wroxeter material comes from the Malvern or the Woolhope area, in the vicinity of *Ariconium,* it could be pointing to the source of other commodities, or indeed craftspeople, reaching Wroxeter in its earliest history. Alternatively, if it comes from Wenlock Edge it provides evidence for a more local, pre-Roman pottery industry that had not previously been suspected.

Acknowledgements
I would like to thank a number of people who contributed to the writing of this report: Jeremy Evans brought to my attention the Alcester parallels for the jar with grafitti; Steven Willis and Robin Jackson, the latter of Worcestershire County Council Archaeological Service, provided text and illustrations for the forthcoming *Ariconium* pottery report; Rob Ixer undertook additional research into the Palaeozoic-Limestone-tempered wares; David Williams identified the amphorae; Roger White provided continuing support and enthusiasm, and Annette Hancocks, once again, contributed to a number of useful discussions about the assemblage.

3.4 Post-Roman pottery
by Stephanie Ratkai

A total of 58 post-Roman sherds, weighing 741g, was recovered. Post-Roman pottery was concentrated in Trench 16, with smaller amounts present in Trench 14, Trench 19 and Trench 12 (Table 6). Only Trench 16 contained medieval pottery. Residual Roman pottery was present in all these trenches (*see* Evans, above).

Table 6: Occurrence of post-Roman pottery by Trench (quantification by sherd count)

	Tr 12	Tr 14	Tr 16	Tr 19	Total
Fabric					
irfab1	-	-	2	-	2
irfab2	-	-	6	-	6
irfab3	-	-	8	-	8
irfab4	-	-	4	-	4
ipfab14	-	-	1	-	1
miscfab25	-	-	1	-	1
wmsandy	-	-	1	-	1
mp	-	1	-	-	1
blw	-	1	1	-	2
cw	7	9	-	1	17
blwl	-	-	1	2	3
mang	1	-	-	1	2
estw	1	-	-	-	1
modern	1	2	-	5	8
Total	10	13	26	9	58

All the medieval pottery was examined under x20 magnification and matched to the type series formed for the Wroxeter Hinterland Project (Ratkai, forthcoming). All the medieval pottery could be matched to WHP type series. The post-medieval pottery was recorded by ware type (as for the Marsh collection from Uckington (*ibid*). All the medieval and post-medieval pottery was recorded by sherd count, sherd weight, rim count and rim percentage. Details of form, decoration, glaze, etc., were recorded. Modern pottery was recorded by sherd count and sherd weight only.

Table 7: Post-Roman pottery from Trench 16 (quantified by sherd count)

Context	8500	8501	8502	8503	8504	8505	Total
Fabric							
irfab1	-	2	-	-	-	-	2
irfab2	2	-	1	2	-	1	6
irfab3	-	-	-	3	5	-	8
irfab4	1	-	2	1	-	-	4
ipfab14	-	-	-	1	-	-	1
miscfab25	-	-	-	-	1	-	1
wmsandy	-	-	-	1	-	-	1
post-medieval	-	2	-	-	-	-	2
modern	-	1	-	-	-	-	1
Total	3	5	3	8	6	1	26

The medieval sherds were generally small, abraded and undiagnostic (Table 7, 8). However, glazed vessels formed the majority at just over 65% of the sherds. Although the group of medieval sherds was small, nevertheless, the high proportion of glazed vessles was matched amongst the Wroxeter Hinterlands surface collected pottery and also the Uckington Farm group. The few diagnostic sherds consistedof a Midlands Purple (mp) jar with a thumbed cordon around the neck (Trench 14 [7501]), a carinated jug neck in miscfab25 [8503], a slashed handle in irfab3 [8503] and a ?bowl sherd in irfab4. The bowl from [8505] was decorated with an applied thumbed vertical strip and irregular incised horizontal lines. Traces of a brown, almost opalescent, glaze was present on both interior and exterior surfaces. The vessel form can be matched by a vessel from Haughmond Abbey (Ratkai, forthcoming) which was found in levels dated 1130-1200.

Table 8: Post-Roman pottery from Trench 16 (quantified by weight)

Context	8500	8501	8502	8503	8504	8505	Total
Fabric							
irfab1	-	21	-	-	-	-	21
irfab2	27	-	13	32	-	13	85
irfab3	-	-	-	50	28	-	78
irfab4	2	-	24	5	-	-	31
ipfab14	-	-	-	4	-	-	4
miscfab25	-	-	-	-	11	-	11
Wmsandy	-	-	-	20	-	-	20
post-medieval	-	7	-	-	-	-	7
modern	-	18	-	-	-	-	18
Total	29	46	37	111	39	13	275

The medieval pottery contained little closely dated material generally. The earliest pottery may be the west Midlands sandy ware cooking pot sherd from [8503] datable to the 12th-13th centuries or the bowl (see above) from [8505]. The iron-rich fabrics irfab1-irfab4 are mainly dated to the 13th-14th centuries. On the admittedly rather scanty evidence, there was no medieval pottery from Trench 16 which need date to later than the 14th century, the next ceramic phase being represented by a blackware sherd from [8501]. A jug sherd with complex roller-stamping in miscfab25, from [8504], would seem to fit in with the 13th-14th century date range.

The post-Medieval pottery was not well represented and was dominated by 17th-18th century coarsewares (cw) in marked contrast to the pottery from Uckington Farm. The coarsewares could be divided into two main groups: iron-rich that were usually slipped on the unglazed surfaces and sometimes slipped beneath the glaze, and iron-poor which were always slipped beneath the glaze. Forms appeared to be bowls and dishes rather than jars. A pie crust dish in a cream fabric with an internal balck glaze was also

represented. The coarse wares appeared to be late 17th or early 18th century types. Other post-Medieval fabrics present were manganese mottled ware (mang), 17th century blackware with a red fabric (blw), late 17th-18th century balckware with a buff fabric (blwl), and 18th century brown stoneware (estw).

3.5 The slag and associated finds

by Jane Cowgill

Seven small fragments of slag, weighing 89g, were recovered from two contexts in Lining Hole 12; a layer in Phase Y1 (6535), and a Phase X2 dump layer (6541). The latter produced the only identifiable piece, a fragment of plano-convex+ hearth bottom (80g), together with a small (2g), slagged piece of ceramic with a glassy upper surface, too small to be identified with confidence.

3.6. Non-ceramic artefacts from the Pipeline excavation

by Lynne Bevan, University of Birmingham

Introduction

Due the small size and limited nature of the small finds assemblage, much of which was in a poor state of preservation, a selective approach has been taken to illustration, and only the more complete and identifiable objects have been catalogued or discussed in any detail. The small finds assemblage does, however, include some interesting material, particularly the brooches and wall plaster which are entirely consistent with what might be expected in a major Roman *civitas* capital. In the text below, small finds are summarised and discussed by material and context numbers appear in brackets.

Worked Bone

Three items of worked bone were recovered; part of a ?pin shaft (Figure 25:1), the top of a needle (Figure 25.2), and a one-piece knife handle with a slot at one side, presumably intended to accommodate a slender folding blade (Figure 25:3). While the possible pin shaft and the needle are probably of Roman date the knife handle is almost certainly later. Pivoted and folding blades are known from the Anglo-Saxon period, for example at Coppergate, York (Ottaway 1992, fig. 244, 589) but the Wroxeter example was not designed to accommodate a pivoted blade and its design is dissimilar to the illustrated folding blade from Coppergate (*Ibid.*, fig. 244: 2979). Instead a Post-Medieval date seems more likely for the knife handle, although no close parallels have been found.

Catalogue

1 Upper section of a bone needle with broken eye. Length: 42mm, diameter at widest end 4mm. Context 3013 F402 (Tr. 5). Fig. 25.1

2 Mid-section from the tapering shaft of a pin or other implement, broken at both ends. Length: 43mm, diameter at widest end: 4mm. Context 6505. Fig. 25.2. The bone has been stained green, either deliberately for decorative effect, or through contact with a copper alloy object.

3 Handle with slotted edge and two carved bands and a small notch at the narrowest end. The hollow edge of the handle appears to have been designed to contain a folding

knife blade. Length: 64mm, width at widest end: 8mm, thickness: 5mm. Context 3013. Fig. 25.3.

Copper Alloy

Copper alloy objects were few and poorly preserved. Identifiably Roman objects comprised two pennanular brooches (Figure 22.4 & 5) and two short broken lengths of chain link, probably from jewellery or hanging lamps (1017 and 'TR 12', not illustrated). A fragment of copper alloy ?plate with a corroded surface (unstratified) and some very small amorphous fragments were also found (3020). The brooches are both of Fowler's class A and differ only in the treatment of the terminals, the milling on that from Trench 12 putting it in sub-class A4 while the plain globular terminals of that from Trench 5 indicate sub-class A1. In terms of dating, neither offers a close date range. Hattatt suggests a *floruit* of *c* 100 BC to AD 250 for A1 brooches and *c* AD50 to 250 for A4 brooches (1989, table 7). Both dates would be consistent with the 1st and 2nd century pottery with which they were associated.

Catalogue

1 Complete copper alloy penannular brooch of Fowler's class A1 (Fowler 1960). The hoop is complete and is made of round-sectioned wire. It is severely corroded and the pin is still attached although bent at right angles to the hoop. No decoration is visible on the terminals which are spherical. Diameter of brooch: 29mm, diameter of hoop: 4mm. Context 3020, F408 TR 5. Fig. 25.4.

2 Complete but fragmented copper alloy penannular brooch of Fowler's class A4 (Fowler 1960). The brooch is in four pieces: two halves of the hoop, one with half a pin attached but without its terminal, and the detached terminal and other half of the pin. The brooch has a round-sectioned hoop and is severely corroded. Despite this, the terminals can be seen to be decorated with two rows of milling with a collar at the junction with the hoop. The pin has a tapering triangular head but is otherwise plain. Diameter of brooch: 31mm, diameter of hoop 4mm, length of pin: 36mm. Context 6535, S.F. 3, TR 12. Fig. 25.5.

3 Two complete oval chain links and several fragmentary links, now all separate and in a very degraded condition. The links were originally doubled to form a complex chain whose overall form is unreconstructable. It is similar to examples from Verulamium (Frere 1972, 124 nos. 77, 78, fig. 36). Dimensions of complete links: length: 10mm, width: 7mm, thickness: 1.5mm. Context 1017, SF 2. TR 1 Not illustrated.

4 Approximately 20 fragments of chain links, originally of the same dimensions as No. 3 above. TR 12. Not illustrated.

Iron

All the iron was in a poor state of preservation, with a high incidence of corrosion. Identifiable material included a possible broken key handle (3013), a possible hinge of uncertain date (unstratified), a heavy, hollow object, possibly a segment of pipe (8000), a length of rod and a possible punch-shaped tool (TP 12, 'topsoil'). Seventy-three nails came from the following contexts: 1000 x 1, 1016 (x 2), 1017 (x 2), 3006 (x 25), 3008 (x 1) 3013 (x 10), 3018 (x 4), 3021 (x 1), 6500 (x1), 6505 (x 2), 6506 (x 1), 6507 (x 1), 6535 (x2), 6541 (x 1), 7503 (x 1), 7505 (x 1), 10004 (x 4), TP 12 'pipe trench' (x 1), TP

12 'topsoil' (x 11). A small quantity of smithing slag was also recovered (6535, 6541 x 2) (*see* Cowgill, above).

The possible key handle is too fragmentary for illustration and its rounded shape suggests a post-Roman date. The possible hinge and possible punch-shaped tool are corroded and not chronologically-diagnostic. Both are from topsoil contexts. Many of the nails, which appear to have been used for masonry or woodwork, are probably of Roman origin but, in common with the rest of the metalwork, they are in a generally poor state of preservation. No individual catalogue descriptions are provided for these objects.

Wall Plaster

Quantities of wall plaster, weighing a total of 3930 grams, were recovered from several contexts, including a 'plaster dump' in Test Pit 12 (Table 9).

Table 9: Quantities and Weights of Wall Plaster by Context

Context No.	No. of Fragments	Total Weight (g.)
6500	70	481
6501	12	399
6503	6	16
6505	6	122
6507	1	10
6508	121	1540
6509	1	12
6542	4	36
U/s	93	1314
Totals	**314**	**3930**

Due to the general plainness of the colours chosen, combined with a high incidence of fragmentation and surface erosion, reconstruction of any part of a panel was not possible, despite the fairly large size of the collection. The average thickness of the plaster fragments was 20mm and the largest surviving fragment with a painted surface was approximately 70mm x 60mm in size. The underlying plaster was a coarse conglomerate containing numerous small grey and red pebbles, some of which were up to 10mm in length. Despite severe surface degradation, the wall plaster retained much of its original colour, almost exclusively comprising yellow ochre and a deep red 'oxblood' shade, arranged in registers or bands, since some fragments originate from the interface between the two colours. Three small fragments retained traces of a light green pigment (6501, 6507, 6508).

Fragments of wall plaster have been found during previous excavations at Wroxeter, for example, in various rooms in the Baths Basilica (Barker 1975, Barker *et al.* 1997). The most elaborate wall painting consisted of 'large circles containing stylised flowers with green lanceolate leaves surrounding the circles, all above a red dado' (Barker 1975, 110). Evidence for linear decoration in a variety of colours has also been recorded, with the majority of the designs consisting of stripes of colour arranged on a predominantly white ground, such as a large panel with double bands of red stripes (Barker *et al.* 1997, 32), and white and black stripes (*Ibid.*, 135). Small fragments of red, white and orange have also been found, the design of which could not be reconstructed (*Ibid.*, 30-32) and more varied, but unspecified, colours were identified

among a 'plaster dump' (*ibid.*, 198). The only illustrated example was a large fragment of wall plaster with stripes of dark maroon and green, fading to cream on a white background (*Ibid.*, fig. 32, 30-32). A plastered ceiling at Wroxeter Insula V Baths proved to be more elaborate, and included rosettes and spot motifs for which design parallels were postulated at a local and regional level, suggesting 'an interchange of motifs broadly speaking along the Severn Valley' (Davey and Ling 1982, 201).

In contrast to surviving evidence from the Baths Basilica, there is no evidence for any figurative or naturalistic foliate motifs in this present collection, which seems to have all originated from a single room, or even a single wall. Neither is there any evidence for the registers of colour having been arranged against a white ground. Of course, this does not preclude the use of more elaborate painting schemes elsewhere in the vicinity, but at the same time the plainness of the colours chosen might reflect either personal preference on behalf of the owner of the villa, or perhaps the function of the room which might have been designed as a private, rather than public, space. Depending upon the availability of lighting, a room painted in such rich shades might appear vibrant rather than gloomy, or in an enclosed space perhaps the deep shades were chosen to work with an artificial light source such as oil lamps in a bed chamber.

Mortar
Fifteen fragments of mortar, probably originating from wall plaster, were also recovered from the following contexts: 3006 x 8, 6506 x 1, 6510 x 3, 7504 x 1, TP 8 x 1, unstratified x 1.

Oyster Shell
A total of seven oyster shells was recovered from the following contexts: 3002, 3013, 6504, 6520, TP 12 'topsoil' (x 3).

3.7 Roman Glass
by Lynne Bevan, with Specialist Identifications by Hilary Cool

Twelve fragments of Roman glass were identified including a fragment of blue and white polychrome glass from a pillar-moulded bowl (Figure 23:1), two fragments, one of which was a rim, from a cylindrical cup (Figure 23:2), and small fragments from two other vessels (6508 and TP 12, not illustrated). The remainder were undiagnostic fragments from five round or square blue-green bottles (1001, 3010, 8003, unstratified x 2) and two miniscule blue-green and pale green fragments, possibly from other vessels (6524). One fragment of Roman window glass was identified (10004) and a water-rounded drop resulting from molten glass coming into contact with water, possibly during manufacture or during an attempt to extinguish a house fire (6524, not illustrated).

Among the vessel glass, with the exception of the mid-1st century pillar-moulded bowl (Figure 23:1), datable material is suggestive of a 2nd to 3rd century date.

Catalogue

1 Fragment from a pillar moulded bowl. Translucent deep blue ground with opaque white spirals or rods and opaque yellow spot. Parts of two ribs remaining, one retaining tooling mark at top. The interior is wheel-polished and the exterior fire-polished. The

dating for this piece, mid-1st century, is similar to that of the pillar-moulded bowl from the Wroxeter Hinterland Project surface survey (Bevan and Cool, forthcoming), although the colour combination, especially those bowls with additional yellow patches, is more common and examples have been recorded from a number of sites including Neronian contexts at Sheepen (Harden 1968, 294, nos. 13 and 16; Charlesworth 1985, fig. 80/12, mf3:F2/12-14), and pre-Flavian and pre-AD 85 contexts at Richborough (Bushe-Fox 1949, 159), and Hod Hill (Harden 1968, 117, nos 4 and 5, Fig 39). See Cool and Price 1995, 17-18 for a full summary. A fragment was also found during the Wroxeter Webster excavations (WB 98, 187). Dimensions 24mm x 11mm x 2-5mm. Fig. 26.1.

2 Rim fragment from a cylindrical cup. Colourless with clouded surfaces. Vertical rim, edge fire thickened, straight side. Also one other fragment from the same vessel, probably from the carination to the wide lower body. This vessel is an an Isings 85, the most common drinking vessel in Britain during the later-2nd to mid-3rd century (Price and Cool 1985, 82). Rim diameter 80mm, present height 34mm, wall thickness 1mm. TP 3, 1500. Fig. 26.2

3 Body fragment, blue-green glass from a convex/curved sided vessel, retaining a spiral-trailed pattern, dating from the 1st to 3rd century. It is possible that this is a fragment from a bath flask, in which case a 2nd to 3rd century date is more appropriate. Length: 24mm, width: 10mm, thickness: 1.5mm. TR 12, 6508. Not illustrated.

4 Colourless body fragment of 2nd to 3rd century date. Length: 8mm, width: 22mm, thickness: 1mm. TP12. Not illustrated.

5 Flat fragment from a prismatic bottle. Dimensions: 36mm x 22mm x 2mm. TP5, 3010 F403. Not illustrated.

6 Water-rounded ball of blue-green glass, possibly debris from the known glass-working site nearby (Price and Cool 1991) but it might equally have resulted from being burned in a fire. Diameter: *c* 7mm. TR 12, 6524. Not illustrated.

3.8 Report on a coin from WST99, Lining Hole 5
by Roger White

A single coin was presented for identification from the excavation. The surface is locally poorly preserved but where corrosion products are not present, the coin appears to be virtually unworn. The coin was conserved by the Wiltshire Museums Service. References are to the relevant volume of *Roman Imperial Coinage* and the Cunetio volume (Besly and Bland 1983). The identification of a coin of Gallienus is entirely unremarkable for the coin profile of the city.

WST99 F463 (3009) SF3
GALLIENUS
Obv: [GALLIEN] V [SAVG]
Rev: [A]BVNDANTIA [AVG] B-//

denom: ANT	date: 260-8	mint: R	cat: 5.1 236; Cunetio 1159
diam: 18mm	wt. 2.52g	die axis: 6	wear: SW/SW (locally corroded)

4. THE ENVIRONMENTAL EVIDENCE

4.1 The Animal Bones

by Emily Murray, BUFAU

Introduction

The water main that runs across Wroxeter from north to south was relined as part of on-going maintenance. This resulted in archaeological excavation by machine and hand of 23 lining holes or pits undertaken between October and December 1999. Of those investigated, only four test pits or trenches (Tr. 5, 6, 12 & 15) produced animal bones of archaeological interest.

Quantity & Methods of Retrieval

A very small animal bone assemblage (one and a half boxes - 450 x 200 x 260 mm) was retrieved from the test pits and the majority of these were retrieved by hand. A small number of samples from Trench 12 were processed by bucket floatation and the residues were sieved to 1mm. Four of these produced 'countable' (see below) animal bone elements (Table 12).

Context

Animal bones were retrieved from Trenches 5, 6, 12 and 15. Modern/topsoil contexts from these trenches that produced animal bone were excluded from the analysis. Animal bones were also retrieved from Trenches 1 and 19 but from modern contexts only and thus were given a cursory examination and are not included in the tables.

Most of the animal bones came from Trenches 5 and 12 (Table 10). The contexts from these trenches are principally early Roman in date and based on stratigraphy and associated finds have been divided into sub-phases. For the purpose of this report, however, the sub-phases have been grouped together and the Roman assemblage is considered collectively due to the small number of bones involved (Tables 10, 11 & 12).

Assessment of Faunal Remains

Methods of Assessment

The animal bones were recorded using a modified version of a system devised by Davis (Davis 1992: Albarella & Davis 1994). This system considers a selection of anatomical elements as 'countable' while the presence of non-countable specimens of interest are also noted. The measurements taken follow von den Dreisch (1976) while the tooth wear stages for cattle and pig follow Grant (1982) and Payne (1973 and 1987) for caprines. Sheep and goat differentiation was attempted on certain elements using the criteria described in Boessneck (1969), Kratochvil (1969) and Payne (1969 and 1985). The fusion stage of post-cranial bones was recorded for all species.

Preservation

The preservation of the animal bones from the pits was not homogenous. Overall the preservation was fair to good although a number of individual bones from Trench 12 were heavily eroded and in a poor state of preservation. Many of the bones were also encrusted with grit and all of the animal bones from Trench 15 were discoloured, suggestive of waterlogging. The majority of the excavated bone debris was fragmented and disarticulated, indicative of typical domestic waste. However, two unfused

metaphysis and their epiphysis (pig femur and cattle tibia) were present in context 3013 Trench 12, which suggests that the context had not been heavily disturbed prior to archaeological excavation.

Table 10: Trenches, contexts and phasing for animal bone from the Wroxeter pipeline excavations.

Trench	Context	Phase	No. of countable elements
5	3005	y3 (Roman: dumps)	6
5	3013	y2 (Roman)	28
5	3018	y1 (Roman)	1
6	3505	Roman/Medieval	1
12	6503, 6504, 6507	y2 (Roman: destruction)	3
12	6509, 6524, 6525, 6534, 6535	y1 (Roman: construction)	5
12	6505, 6521, 6526, 6531, 6538, 6541	x2 (Roman: dumping)	29
12	6540, 6544	x1 (Roman: linear features)	6
15	8004, 8005	Roman/Medieval	8

Table 11: Wroxeter Pipeline excavations: Number of 'countable' hand-collected bone elements from Trench 5.

Trench 5	cattle	horse	sheep/goat	pig	dog	dom. fowl
Loose teeth	3	1	2	-	-	-
Mandible	1	-	-	2	-	-
Horncore	-	-	-	-	-	-
Cranium	-	-	1	-	-	-
Atlas	-	-	-	-	-	-
Axis	-	-	-	-	-	-
Scapula	1	-	-	1	-	-
Humerus dist.	1	-	-	1	-	1
Radius dist.	-	-	-	-	-	-
Ulna prox.	1	-	1	-	-	-
Carpal	-	-	-	-	-	-
Metacarpal dist.	1	-	2	1	1	-
Pelvis acetabulum	1	-	-	-	-	-
Femur dist.	-	-	-	1	-	-
Tibia dist.	2	-	-	-	-	2
Astragalus	-	-	1	-	-	-
Calcaneum	1	-	-	-	-	-
Scafocuboid (cuboid)	-	-	-	-	-	-
Metatarsal dist.	-	-	-	1	-	-
Metapodial	-	-	1	-	-	-
Phalanx 1 prox.	2	-	-	-	-	-
Phalanx 2 prox.	-	-	-	-	-	-
Phalanx 3 prox.	-	-	-	-	-	-
Total	*14*	*1*	*11*	*8*	*1*	*3*

Range & Variety

The species represented in the pits were cattle, horse, sheep/goat, pig, dog, and domestic fowl. Red deer was also represented by one non-countable element, a proximal radius from Trench 12 (6541) while rabbit, goat and an articulated neonate lamb (Trench 19) were present in modern/topsoil contexts. A number of the bones displayed evidence for butchery, both chop and cut marks, while two or three bones from Trench 12 showed signs of burning. Dog was represented in Trench 5 by a

metacarpal (MC 3) and a second non-countable element, a proximal metatarsal (MT 5). Gnawing, probably by dogs, was also evident on four bones from Trench 12 and one from Trench 5.

Table 12: Wroxeter pipeline excavations: Number of 'countable' bone elements from the hand collected material and sieved samples (in brackets) from Trench 12.

Trench 12	cattle	sheep/ goat	pig	dom. fowl
Loose teeth	-	3 *(3)*	1	-
Mandible	1	3 *(1)*	1 *(1)*	-
Horncore	-	-	-	-
Cranium	-	-	-	-
Atlas	-	-	-	-
Axis	-	-	-	-
Scapula	-	-	-	-
Corocoid	-	-	-	1
Humerus dist.	3	3	-	-
Radius dist.	-	1	-	-
Ulna prox.	4	-	2	-
Carpal	-	-	-	-
Metacarpal dist.	-	1	-	-
Pelvis acetabulum	-	-	-	-
Femur dist.	-	-	-	-
Tibia dist.	2	-	-	-
Astragalus	-	-	*(1)*	-
Calcaneum	1	1	-	-
Scafocuboid (cuboid)	-	*(1)*	-	-
Metatarsal dist.	-	1	-	-
Metapodial	-	-	-	-
Phalanx 1 prox.	3	*(1)*	-	-
Phalanx 2 prox.	-	-	-	-
Phalanx 3 prox.	-	-	*(1)*	-
Total	*14 (0)*	*13 (6)*	*4 (3)*	*1 (0)*

Table 13: Wroxeter Pipeline excavations : number of 'countable' bones elements from Trench 15 (all from context 8005).

Taxa	Element	Fusion
B	metarsal dist.	fused
B	axis	
EQ	humerus dist.	fused
EQ	tibia dist.	fused
EQ	femur dist.	fused
OVA	metatarsal dist.	fused

The assemblage is too small to make quantitative comparison between species and/or trenches other than to comment that the bones of cattle and sheep/goat occur most frequently. It is also worth noting that the sieved samples from Trench 12 produced small and peripheral bones and teeth of sheep/goat and pig (Table 12). The distribution of NISPs between the hand-collected and sieved assemblages is therefore quite different, suggesting that there is a degree of recovery bias in the case of the former. This range of species corresponds with that identified by Newton (1916) from earlier excavations from the town of Wroxeter.

Table 14: Wroxeter Pipeline excavations: Teeth measurements (to the nearest tenth of a millimetre) and wear patterns after Grant (1982) for cattle and pig and Payne (1973 & 1987) for sheep/goat.

Taxa	Trench	Context	COL	M_L	P2	P4	dP3	dP4	dP4L	dP4W	M1	M1L	M1WA	M1WP	M2	M2L	M2WA	M2WP	M3	M3WA	M12
B	5	3005	HC	l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	k
B	5	3005	HC	l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	l
B	5	3013	HC	m	-	P	-	-	-	-	k	-	-	-	-	-	-	-	-	-	-
B	6	3505	HC	l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	j	-	-
B	12	6500	HC	l	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	l
B	12	6535	HC	m	-	-	-	-	-	-	-	-	-	-	P	-	-	-	j	-	-
O	5	3013	HC	l		-	-	-	-	-	-	-	-	-	-	-	-	-	5A	78	-
O	5	3013	HC	l		-	-	-	-	-	-	-	-	-	-	-	-	-	11G	74	-
O	12	6524	FS	l		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9A
O	12	6521	HC	m		-	-	-	-	-	9A	-	67	-	P	-	79	-	E	69	-
O	12	6531	HC	m		9A	-	-	-	-	9A	-	68	-	9A	-	74	-	7G	74	-
O	12	6541	HC	l		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9A
O	12	6541	HC	l		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9A
O	15	8000	HC	m		-	-	-	-	-	9A	-	72	-	9A	-	83	-	-	-	-
OVA	12	6541	HC	m		-	-	21M	-	56	9A	-	67	-	5A	-	73	-	-	-	-
S	5	3013	HC	m	-	a	-	-	-	-	E	173	106	114	b	224	139	150	-	-	-
S	5	3013	HC	m	-	-	P	a	199	83	V	-	-	-	-	-	-	-	-	-	-
S	12	6521	FS	m	-	-	-	d	174	78	-	-	-	-	-	-	-	-	-	-	-
S	12	6521	HC	m	E	-	-	-	-	-	d	167	96	105	-	-	-	-	-	-	-

('P' indicates 'present', M/L = mandible/loose, HC = hand collected, FS = finely sieved).

4.2 The charred plant remains from Wroxeter Pipeline Excavation, Shropshire.

by Pam Grinter, *University of Birmingham Environmental Archaeology Services*

BUFAU excavations along the route of Wroxeter pipeline revealed a number of Roman features and deposits. In total, 24 samples from these excavations were selected at the excavator's discretion for assessment, of which 8 samples were selected for further analysis.

Aims

This analysis had three main aims:

- to determine what cultivated and wild taxa are present.
- to determine what the charred plant remains may tell us about the agricultural activities taking place nearby.
- to determine what the plant remains may tell us about the surrounding environment.

Method

Soil samples were processed by bucket flotation by the author. Flots were sieved to 500μm and the heavy residues were sieved to 1mm, all flots (the material which floats) were dried in a warm drying oven.

The selected samples were sorted, and material identified, under a low power binocular microscope at magnifications between x10 and x25. The heavy residues were sorted by eye.

Identification was aided by use of a modern comparative collection and by use of various seed identification manuals (Anderberg 1994; Beijerinck 1947; Berggren 1969 & 1981; Jacomet 1987; Jacquat 1988 and Werner *et al.* 1988). Nomenclature for the plant remains follows Stace (1997) for indigenous species and Zohary and Hopf (1994) for the economic species.

Results

Table 15 summarises the results for samples from each context. Cereals were present in all samples analysed. Free threshing wheat grains *(Triticum* sp.) were present in all samples, except 22. Many of these grains are straight sided and low-backed type, and although determinations between wheat species on the morphology of the grains alone is no longer thought to be secure, it is possible that these longer, straight sided grains may be spelt wheat *(Triticum spelta).* The presence of spelt chaff in samples 4 and 21 also strengthens this interpretation. In addition to spelt, samples 4, 13, 15, 21 and 23 contained hulled barley *(Hordeum vulgare).* Both of these species were commonly cultivated during the Roman period.

Sample 4 (context 3023) contained the richest assemblage of charred plant remains. These included wheat grains *(Triticum* sp.) and the glumes from spelt wheat *(Triticum spelta)* together with barley grains *(Hordeum vulgare).* The wild taxa recovered included alder *(Alnus glutinosa),* common chickweed *(Stellaria media)* common marsh-bedstraw *(Galium palustre),* spike and club rushes *(Eleocharis* sp.

and *Isolepis setacea).* The remaining samples generally contained small quantities of cereal grain, hazelnut shell (samples 15 and 16 only), and wild taxa.

The wild species present generally fall into two habitat groups: (1) those of waste or cultivated ground; such as fat hen *(Chenopodium album),* black-bindweed *(Fallopia convolvulus)* and grasses *(Poaceae sp.)* and (2) those of damp ground or ditches; including spike rush, club rush *(Eleocharis palustris/uniglumis)* and common marsh-bedstraw *(Galium palustre).*

Weed seeds coming onto site within cereal products and by-products are the most likely source for the wild taxa, which frequently occur as weeds of arable crops. The presence of taxa indicating wet and/or poorly drained conditions suggest that areas of Wroxeter were also poorly drained and/or wet during the Roman Period.

Previous work by Charles, Colledge and Monk (1997) produced similar results. Barley and wheat were the main cultivars present and many of the same wild taxa such as black- bindweed *(Fallopia convolvulus),* grasses *(Poaceae sp.)* bromes *(Bromus secalinuslhordeaceus)* and spike rush, club rush *(Eleocharis palustris/uniglumis)* were also present in the samples recovered during excavations at the Baths Basilica.

Conclusions

There were low concentrations of charred plant remains in 7 of the 8 samples analysed. Sample 4 (context 3023) was from Roman dump layers and contained the highest concentration of charred plant remains and the greatest variety of plant species.

The cereal grains present were free threshing wheat *(Triticum* sp.) and barley *(Hordeum vulgare).* There was also spelt wheat chaff *(Triticum spelta)* present in samples 4 and 21, which suggests that at least some of the wheat grains present were spelt grains. All of these cereals were commonly cultivated throughout the Roman period.

The charred plant remains recovered are likely to represent the 'background noise' of agricultural and crop processing activities.

This was a unique opportunity to study the plant remains along a transect through the Roman City of Wroxeter. The information contained within this report adds to the work of Mike Charles, Sue Colledge, and Mick Monk (1997) on the charred plant remains from Wroxeter Baths Basilica. Although concentrations of charred plant remains were not high, and were not associated with any fully investigated Roman feature; the study does nonetheless make an important contribution to the overall landscape reconstruction of Wroxeter and its hinterland.

Table 15: The Charred Plant Remains from Wroxeter Pipeline (WST99)

	Flot	HR*	Flot	Flot	Flot	HR	Flot	Flot	Flot	HR	
Sample number	4	13	14	15	16	16	21	22	23	23	
Context number	3023	6541	6542	6535	6523	6523	6526	6504	6531	6531	
Trench number	Tr5	Tr12	Tr12	Tr12	Tr12	Tr12	Tr12	Tr12	Tr12	Tr12	
Phase number	Y1	X2	Z	Y1	Y1	Y1	X2	Y2	X2	X2	
Sample volume	8L	-	20L	20L	8L	-	20L	20L	20L	-	
CULTIVATED TAXA											
Triticum spelta L. glumes	56	-	-	-	-	-	1	-	-	-	Spelt wheat
Triticum sp. grains	30	1	4	7	1	-	1	-	12	3	Wheat
Triticum indet. glumes	9	-	1	-	-	-	-	-	-	-	Wheat
Hordeum vulgare L. grains	11	1	-	2	1	-	1	-	10	2	Barley
Cereal grains indet.	4	-	7	-	4	3	-	4	16	1	
Cereal straw culm node	1	-	-	-	-	-	-	-	-	-	
WILD TAXA											
Ranunculus sp.	5	-	-	-	-	-	-	-	-	-	Buttercups
Alnus glutinosa (L.) Gaertn.	1	-	-	-	-	-	-	-	-	-	Alder
Corylus avellana L. - shell	-	-	-	1	2	-	-	-	-	-	Hazel nut shell
Chenopodium cf. *Album* L.	-	-	-	2	-	-	1	-	-	-	Fat Hen
Chenopodium sp.	-	-	-	-	-	-	-	1	-	-	Goosefoots
Stellaria media (L.) Villars - type	1	-	-	-	-	-	-	-	-	-	Common chickweed
Fallopia convolvulus (L.) A. Love	4	-	-	-	-	-	-	-	-	-	Black-bindweed
Rumex sp.	65	-	-	-	-	-	-	-	-	-	Docks
Myagrum perfoliatum L. - basal pod	1	-	-	-	-	-	-	-	-	-	Mitre cress
Lathyrus sp. / *Vicia* sp.	8	-	-	1	-	-	-	-	-	-	Peas / vetches
Trifolium sp.	-	-	-	-	-	-	-	-	-	-	Clovers
Apiaceae - unidentified	1	-	-	-	-	-	-	-	-	-	Carrot family
Gallium palustre L.	12	-	-	1	-	-	1	-	1	-	Common Marsh-bedstraw
Sambucus nigra L.	2	-	-	6	-	-	-	-	-	-	Elder
Elocharis palustris (L.) Roem & Schult. / *E. uniglumis* (Link) Schult.	3	-	-	1	-	-	-	-	1	-	Spike-rushes
Isolepis setacea (L.) R. Br.	3	-	-	-	-	-	-	-	-	-	Club-rushes
Carex spp. - lenticular	8	-	-	-	-	-	-	-	-	-	Sedges
Lolium sp.	2	-	-	-	-	-	-	-	-	-	Rye-grasses
Avena sp.	8	-	-	-	-	-	-	-	-	-	Oats
Bromus secalinus L. / *B. hordeacus* L.	70	-	-	-	-	-	1	-	-	-	Brome
Poaceae – unidentified	3	1	-	-	-	-	-	-	-	-	Grass
Small Poaceae – unidentified	6	-	-	-	-	-	-	-	-	-	Grass
TOTAL IDENTIFICATIONS	314	3	12	21	8	3	6	5	40	6	

*HR = Heavy residue

4.3 Assessment of archaeobotanical material (pollen and plant macrofossils) from Wroxeter WST 99 TR 15, Shropshire

by James Greig

Summary

Pollen and seeds are preserved, showing signs of marshland surrounded by weeds. There was some evidence of cereals. This shows something of the nature of the Roman landscape around Wroxeter, although probably viewed from a rubbish dump.

The Site

The site was a pipe trench, which revealed wet sediment which looked as if it contained some organic material, under a loose stony layer. There was also wood and some Roman pottery, but the dating of the material was uncertain at the time of the excavation.

Samples

Two monolith boxes were hammered into the profile exposed, as far as the stones would allow. The depth of the top sample box was 115 cm from the present ground surface, to the profile samples represents 115-165 cm from the ground surface. A test sample was also taken from a depth of about 145 cm.

Laboratory work

Plant macrofossils

A subsample of 60 ml was measured out. It was broken down in water, and the lighter, organic, fraction washed over to separate it from the inorganic material, and caught in a 300 µm sieve. The washover was sorted in water under a x10 stereo microscope and the plant remains identified and checked with the writer's own reference collections. The results are listed in taxonomic order (Kent 1992) in Table 16.

Table 16: Plant list, names, and order according to Stace (1991).

Ranunculus sceleratus L.	large numbers	crowfoot
Urtica dioica L.	22	nettle
Rumex acetosella L.	1	sheep's sorrel
Malva sp.	+	mallow
Conium maculatum L.	1	hemlock
Apium cf. *inundatum* (L.) H.G. Reichenb	12	lesser marshwort
Sambucus nigra L.	2	elder
Triticum sp glume base, charred	2	wheat
other remains		
charcoal fragments		++

Pollen analysis

A pollen sample from 135 cm was processed using the standard method; about 1 cm^3 subsamples were dispersed in dilute NaOH and filtered through a 70µm mesh to remove coarser material, which was then scanned under a stereo microscope. The finer organic part of the sample was concentrated by swirl separation on a

shallow dish. Fine material was removed by filtration on a 10μm mesh. The material was acetolysed to remove cellulose, stained with safranin and mounted on microscope slides in glycerol jelly. Counting was done with a Leitz Dialux microscope. Identification was done using the writer's pollen reference collection, seen with a Leitz Lablux microscope. Standard reference works were used, notably Fægri and Iversen (1989) and Andrew (1984). The pollen types have been listed with names according to Bennett (1994) in taxonomic order according to Kent (1992), in Table 17.

Table 17 pollen and spores

Spores		
Pteridium	2	bracken
Polypodium	+	polypody
pollen		
Ranunculus-tp.	+	buttercup, crowfoot
Quercus	9	oak
Betula	1	birch
Alnus	19	alder
Corylus	5	hazel
Chenopodiaceae	1	goosefoot
Rumex-tp.	1	docks and sorrels
Tilia	+	lime
Brassicaceae	23	brassicas
Filipendula	1	meadowsweet
Potentilla-tp.	-	tormentil, cinquefoil
Fabaceae	1	vetch family
Apiaceae	1	umbellifers
Plantago lanceolata	5	ribwort plantain
Dipsacaceae	+	scabiouses
Centaurea nigra	1	knapweed
Lactuceae	23	a group of composites
Aster-tp	1	daisies etc
Cyperaceae	5	sedges
Poaceae	57	grasses
Cerealia-tp.	2	cereals
total pollen	151	
diatoms	+	

Results

The material contained both pollen and seeds in good enough condition and quantity to provide some information about the site and its surroundings.

The seeds include large numbers from marshland plants such as *Ranunculus sceleratus* (maybe corresponding to the *Ranunculus* type pollen) and *Apium* sp. (maybe corresponding to Apiaceae pollen), establishing this as a damp marshy place. The Brassicaceae pollen record could also have come from a marshland plant, although there are no corresponding macrofossils from the small sample to provide more information.

Nettle seeds were also abundant, and some other plants of somewhat overgrown places such as *Conium maculatum* (hemlock). This, and *Malva* (mallow) are often found in Roman sites. *Conium* (hemlock) grows in fairly damp places, but the surrounding dry land was weedy and overgrown.

Some charred wheat chaff, and some cereal pollen, shows signs of human activity.

Finally, there are some signs of woodland and scrub in the surroundings, as would be normal.

This provides more information on the past landscape than it might at first seem; sites like this provide windows of opportunity on aspects of the occupied landscape, and scraps of evidence from various sites can be assembled into a more detailed picture of what the past landscape was like.

Acknowledgements

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4.4 Charcoal from Wroxeter Pipeline excavation, Shropshire

by Rowena Gale

Introduction

Charcoal was recovered from a number of Roman features and deposits along the Wroxeter pipeline. The analysis of the charcoal and charred plant remains focused on 7 samples with the aim of providing environmental and economic evidence. Stratigraphically the samples referred to Phases X2, Y1 and Y2, and Z.

The source of the charcoal is unknown but its association with burnt cereal grains and cereal processing waste (see Grinter, above) suggests an origin from domestic fuel debris or food preparation. The results of the charcoal analyses are compared to the previous work on those from the Wroxeter Bath Basilica.

Materials and methods

The bulk soil samples were processed by Pam Grinter by flotation and sieving using 1mm and 500micron meshes. The resulting flots and residues were scanned under low magnification and the charcoal separated from the charred plant remains. Charcoal fragments measuring >2mm in cross-section were considered for species identification.

The charcoal was relatively well-preserved. Samples were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces and sorted into groups based on the anatomical features observed using a x20 hand lens. Representative fragments from each sample were selected for detailed study at high magnification. In addition to transverse surfaces (TS), fragments were also prepared to show the wood structure in the tangential (TLS) and radial planes (RLS). These fragments were supported in washed sand and examined using a Nikon Labophot microscope at magnifications of up to x400. The anatomical structures were matched to prepared reference slides.

When possible the maturity (i.e. heartwood/ sapwood) of the wood was assessed.

Results

The results of the charcoal analysis are summarized in Table 18. The anatomical structure of the charcoal was consistent with the taxa or groups of taxa given below. It should be noted that the similarity in anatomical structure of some related taxa prevents secure identification to generic level, for example, members of the

Pomoideae (*Crataegus, Malus, Pyrus* and *Sorbus*) and Leguminosae (*Ulex* and *Cytisus*). Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80).

The charcoal was matched to the following taxa:
Betulaceae. *Alnus* sp., alder
Ericaceae. *Erica* sp. and *Calluna vulgaris,* heathers and ling. Many members of the Ericaceae are anatomically similar.
Fagaceae. *Quercus* sp., oak
Oleaceae. *Fraxinus* sp., ash
Leguminosae. *Cytisus* sp., broom; *Ulex* sp., gorse. These taxa are anatomically similar.
Rosaceae. Subfamilies:
Pomoideae which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. It is difficult to distinguish these taxa using anatomical features; the charcoal may include one or more taxa.
Prunoideae which includes *P. avium*, cherry; *P. padus*, bird cherry, and *P. spinosa*, blackthorn. In this instance the broad heterocellular rays suggested *P. spinosa* as the more likely.

Discussion
Charred plant remains from cultivated cereals occurred in all the samples examined and, in addition, weed seeds were fairly common throughout (Grinter, above). By association, it seems likely that the charcoal deposits derived from discarded fuel remains, perhaps from food preparation or domestic hearths. The charcoal from Trench 12 (samples 15, 16, 21, 22 and 23) indicated the more or less consistent use of a relatively narrow range of trees and shrubs during the Phases X2, Y1, Y2 and Z. These included oak (*Quercus*) (sap- and heartwood), blackthorn (*Prunus spinosa*), ash (*Fraxinus*), member/s of the hawthorn/ *Sorbus* group (Pomoideae), alder (*Alnus*) and, less frequently, gorse/ broom (*Ulex/ Cytisus*) (Table 18).

Sample 4 (context 3023) from Trench 5, Phase Y1, from Roman dump layers, differed slightly in that oak (*Quercus*), gorse/ broom (*Ulex/ Cytisus*) and the heather family (Ericaceae) were the only taxa represented. Heather was not identified from the other samples. Interestingly, this sample also included the richest assemblage of charred plant remains (Grinter, above).

Oak (*Quercus*) was common to all 7 samples while other taxa were more sporadic, suggesting that oak fuel was used more frequently than other species. This could also implicate local dominance in neighbouring woodlands. The charcoal was too comminuted to assess the use of coppiced woodlands.

Both hazel (*Corylus*) (nutshells) and elder (*Sambucus*) were present in the charred plant remains but the wood from these shrubs was not identified in the charcoal. Hazel wood is extremely versatile and, in addition to providing an efficient fuel (Edlin 1949; Porter 1990), the coppiced stems have, traditionally, been used for numerous artefactual purposes (Edlin 1949). Given that hazel evidently occurred near the site, it is interesting that the stems were not, apparently, used for fuel,

however, it is impossible to evaluate the significance of this from the small number of samples examined. The absence of elder wood in the charcoal residues is less surprising since, while the shrub is usually common on most soil types, especially around settlements, English folk law (probably of ancient origin) strongly advised against burning elder (Grigson 1958; Mabey 1996).

When compared with the charcoal deposits from the Wroxeter Baths Basilica (Gale 1997), fewer taxa were identified from the charcoal samples from the city contexts. In addition to those named above, contexts from the Baths Basilica included birch (*Betula*), hazel (*Corylus*), holly (*Ilex*), and willow/ poplar (*Salix/ Populus*).

Conclusion

The combination of charred plant remains and charcoal in the deposits suggests an origin from domestic hearths or food preparation. Oak (*Quercus*) appears to have been the most frequently used wood fuel, gathered from stems and or branches sufficiently mature to have developed heartwood. Wood from blackthorn (*Prunus spinosa*), alder (*Alnus*), ash (*Fraxinus*), the hawthorn/ *Sorbus* group (Pomoideae), gorse/ broom (*Ulex/ Cytisus*) and the heather family was also used. Fewer taxa were identified from these contexts from the Roman city than from residues from the Bath Basilica. The charcoal was too fragmented to assess the use of managed woodlands.

Table 18: Wroxeter Pipeline Excavations, WST 99: charcoal

Sample	Context	Alnus	Ericaceae	Fraxinus	Pomoideae	*Prunus*	*Quercus*	*Ulex/ Cytisus*
Phase X2 Tr12								
21	6526	-	-	-	1	3	1r,11h	-
23	6531	3	-	-	2	4	4s,6h	-
Phase Y1 Tr5								
4	3023	-	53	-	-	-	2r	3
Tr12								
15	6535	-	-	-	-	-	3h	-
16	6523	3	-	1	1	3	3h	1
Phase Y2 Tr12								
22	6504	1	-	8	2	1	28s	-
Phase Z Tr12								
14	6542	?2	-	2	-	-	2s,9h,u	-

Key. h = heartwood; r = roundwood; s = sapwood
The number of fragments identified is indicated

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APPENDIX ONE: CATALOGUE OF THE SAMIAN

by Steven Willis, University of Durham

Catalogue

The catalogue lists all samian sherds from the works submitted for identification and dating. The catalogue adheres to a consistent format. Sherds are listed by Lining Hole number in sequence, and in context number order per Lining Hole. The following data are given: the number of sherds and their type (ie. whether a sherd is from the rim, base (footring) or body of a vessel), the source of the item (South Gaulish is abbreviated to SG, Central Gaulish to CG, and East Gaulish to EG), the vessel form (where identifiable), the weight of the sherds in grams, the percentage of any extant rim (ie. the RE figure, where 1.00 would represent a complete circumference) or base (ie. the BE figure) and the rim and base diameters, and an estimate of the date of the sherd in terms of calendar years (this being the date range of deposits with which like pieces are normally associated). Any decoration is then described. Oswald's figure types (Oswald 1936-7) are referred to following the standard convention, for example O.1926a would be his type 1926a. The presence of other features such as burning, sherd joins, rivet holes, etc. is also noted.

• Lining Hole 1

Context 1000

Body, CG Lezoux, form not identifiable, 2g, *c* AD 120-200 (quite probably 150-200).

Base, CG Lezoux, Drag. 31, 22g, BE: 0.13, Diam. 90mm, *c* AD 150-200. There is a sherd from the same vessel in context 1001.

Context 1001

Body, CG Lezoux, form not identifiable, 1g, *c* AD 120-200.

Base, CG Lezoux, Drag. 31, 18g, BE: 0.13, Diam. 90mm, *c* AD 150-200. There is a sherd from the same vessel in context 1000.

Context 1009

Body, CG Les Martres, form not identifiable though possibly from a cup, 1g, *c* AD 100-130. A fragment from a basal stamp is represented:]T[, there is an indication that the T is followed by IS and there is hence a possibility that this is a stamp of Lentiscus (cf. Terrisse 1968, Pl. LIII; cf. Dannell 1971, 308, No.53); an alternative possibility is that the stamp reads]LV[retrograde. Fig. 20.4

Context 1015, F5

Rim, CG Les Martres, Drag. 18/31, 19g, RE: 0.13, Diam. 180mm, *c* AD 100-130; slightly burnt.

Context 1017

Body, CG Les Martres, from a cup, 1g, *c* AD 100-130. It is possible that this sherd is from the same vessel as the sherd from context 1009.

• Lining Hole 2

Context 1506

Body, CG Lezoux, Drag. 33, 3g, *c* AD 120-200; virtually excoriated.

Body, CG Lezoux, from a bowl or dish, 2g, *c* AD 120-200.

• Lining Hole 4

Context 2500

Rim, CG Lezoux, from a bead rimmed vessel, probably Drag. 30 or 37, 4g, RE: *c* 0.04, Diam. *c* 190mm, *c* AD 120-200; virtually excoriated.

Context 2508
Body, SG La Graufesenque, form not identifiable, 4g, *c* AD 40-100.

Context 2509
Body, SG La Graufesenque, Drag. 18, 2g, *c* AD 40-100 (probably pre AD 80).
Body, SG La Graufesenque, from a bowl, probably Drag. 37, 7g, *c* AD 70-100; (no decoration).

• Lining Hole 5

Context 3005, F401
Rim, CG Lezoux, Drag. 31, 13g, RE: 0.07, Diam. 180mm, *c* AD 150-200.

Context 3013, F405
Body, SG La Graufesenque, form not identifiable, 4g, *c* AD 70-100.
Body, CG Les Martres, Drag 18/31, 5g, *c* AD 100-125.
Body, CG Lezoux, Drag 18/31, 12g, *c* AD 120-150.
Body, CG Lezoux, Drag 18/31R, 9g, *c* AD 120-150; 1 drilled hole for repair via riveting.
Rim, CG Lezoux, Drag 37, 10g, RE: *c* 0.03, Diam. uncertain, *c* AD 120-175; (no decoration).
Rim, CG Lezoux, Drag 33, 9g, RE: 0.11, Diam. 120mm, *c* AD 120-200.
Rim, CG Lezoux, (different) Drag 33, 4g, RE: *c* 0.03, Diam. uncertain, *c* AD 120-200.
Base, CG Lezoux, probably Drag 33, 6g, BE: 0.15, Diam. 60mm, *c* AD 120-200.
Rim, CG Lezoux, Drag. 18/31 or 31, 5g, RE: 0.05, Diam. 170mm, *c* AD 120-200.
Rim, CG Lezoux, from bead rimmed vessel, probably Drag. 30 or 37, 4g, RE: *c* 0.03, Diam. uncertain, *c* AD 120-200.
Rim, CG Lezoux, Drag. 31, 12g, RE: 0.06, Diam. 180mm, *c* AD 150-200.
Rim, EG Argonne, Drag. 31, 18g, RE: 0.10, Diam. 170mm, *c* AD 150-230.
Base, EG, from a large bowl, 6g, BE: 0.10, Diam. 90mm, *c* AD 150-250.
Body, EG Trier, form not identifiable, 2g, *c* AD 150-260.

Context 3023, F409
Rim, SG La Graufesenque, Drag. 27, 2g, RE: 0.07, Diam. 130mm, *c* AD 70-100.
Rim, CG Les Martres, Drag 33, 2g, RE: 0.05, Diam. 130mm, *c* AD 100-130.

Context 3024
Base, SG La Graufesenque, Drag. 30, 51g, BE: 0.36, Diam. 80mm, *c* AD 50-90; particularly high gloss; (no decoration).
Rim, SG La Graufesenque, Drag. 37, 6g, RE: *c* 0.04, Diam. uncertain, *c* AD 70-100; (no decoration).

Unstratified
Rim, SG La Graufesenque, Drag. 36, 4g, RE: *c* 0.03, Diam. uncertain, *c* AD 70-100; slightly burnt.

• Lining Hole 6

Context 3504
Body, CG Lezoux, from a cup or dish, 1g, *c* AD 120-200.

Context 3505

Rim, CG Lezoux, Drag 33, 1g, RE: 0.05, Diam. 130mm, *c* AD 120-200.
Rim, CG Lezoux, Drag. 31R, 17g, RE: 0.09, Diam. 260mm, *c* AD 160-200; burnt.

• Lining Hole 11a

T.P. 11A Pipe Fill (Fig. 20.1)
Body, SG La Graufesenque, Drag. 37, 11g, *c* AD 70-100. A section of a narrow basal wreath is present, comprising a fine trifid arrangement; the motif occurs as an upper band of a wreath illustrated by Hermet (1934, pl. 47 No. 33). Fig. 20.1

• Lining Hole 12

Context 6501, F1100
Body, CG Les Martres, probably Drag. 18/31, 3g, *c* AD 100-130; (different vessel from the Les Martres Drag. 18/31 represented in context 6535).
Body, CG Lezoux, Drag. 30 or 37, 3g, probably *c* AD 120-140; a tiny area of the ovolo band is present but is too vestigial to be identified.
Rim, CG Lezoux, Drag. 18/31, 18/31R or 31, 3g, RE: *c* 0.03, Diam. uncertain, *c* AD 120-200.
Rim, CG Lezoux, from bead rimmed bowl, 3g, RE: 0.05, Diam. 130mm, *c* AD 120-200.

Context 6505, F1108
Rim, SG La Graufesenque, Drag. 15/17, 2g, RE: *c* 0.04, Diam. uncertain, *c* AD 40-55; very high gloss.
Body, CG Lezoux, probably Drag. 33, 2g, *c* AD 120-175; partially burnt.
Body, EG Rheinzabern, Drag. 31R, 1g, *c* AD 150-225.

Context 6509, from Environmental Sample 9
Body, CG Les Martres, Drag. 18/31, 2g, *c* AD 100-130.

Context 6510, F1102
Body, EG Rheinzabern, bowl, probably Drag. 30 or 37, 8g, *c* AD 150-180.

Context 6524
Body, SG La Graufesenque, Drag. 37, 6g, *c* AD 70-100; burnt. A section of a basal wreath is present, comprising short s-shaped gadroons, a common motif on this form during the Flavian period (cf. Hartley 1985, Fig. 98 D27). Fig. 20.2

Context 6526, F1109
Base, SG La Graufesenque, form not identifiable, 1g, BE: *c* 0.03, Diam. uncertain, *c* AD 40-100.

Context 6535
Rim, CG Les Martres, Drag. 18/31, 9g, RE: 0.07, Diam. 180mm, *c* AD 100-130.
Rim, CG Lezoux, Drag. 27, 7g, RE: 0.09, Diam. 130mm, *c* AD 120-140; very high gloss.
Base, CG Lezoux, perhaps from a beaker, 2g, BE: 0.10, Diam. 90mm, *c* AD 120-200.

Context 6541
Rim, SG La Graufesenque, Drag. 24/25, 2g, RE: 0.05, Diam. 90mm, *c* AD 40-60; very high gloss.
Rim, SG La Graufesenque, Drag. 37, 11g, RE: 0.06, Diam. 190mm, *c* AD 70-90; high gloss.

Context 6542

Rim, SG La Graufesenque, (very small) Drag. 27, 1g, RE: 0.06, Diam. 80mm, *c* AD 60-80.

Pipe Trench
Rim, SG La Graufesenque, Drag. 18, 3g, RE: *c* 0.02, Diam. uncertain, *c* AD 40-70.
Body, SG La Graufesenque, from a cup, 1g, *c* AD 40-100.
Body, CG Les Martres, form not identifiable, 0.5g, *c* AD 100-130.
2 conjoining body sherds, CG Lezoux, from a bowl or dish, 14g, *c* AD 120-200.
Body, CG Lezoux, Drag. 31, 23g, *c* AD 150-200.
1 base sherd and a conjoining body sherd, CG Lezoux, probably Drag. 33, 17g, BE: 0.20, Diam. 60mm, *c* AD 160-200. Most of a stamp is present: CATVLL[, that is Catullus ii of Lezoux, whose products are uncommon in Britain; the Leeds Corpus of Samian Stamps records stamps of this potter from Halton Chesters, South Shields and Vindolanda, none of which are published; the stamps are particularly associated with form 33 (Brenda Dickinson, pers. comm). Fig. 20.5

• Lining Hole 14

Context 7501
Body, CG Lezoux, Drag. 36 or 42, 9g, *c* AD 120-175.

• Lining Hole 15

Context 8004
Body, EG Trier, from a bowl, 7g, *c* AD 150/160-230.

Context 8005
Rim, probably EG, probably Drag. 30, 8g, RE: 0.07 Diam. 180mm, *c* AD 150-230; (no decoration).

Context 8006
Body, CG Lezoux, Drag. 37, 10g, *c* AD 135-170. This sherd is from a small bowl of Cinnamus ii; the ovolo is quite large and double-bordered with a rounded end; the tongue is corded with a terminal, turned to the left, in the form of a blurred rosette; below is a bead border; the ovolo is unequivocally Stanfield and Simpson's Cinnamus ii ovolo 2 (1958, 264, Fig.47 No.2; 1990, 304); underneath the ovolo band is part of a figure with a staff, apparently an O.583 variant; to the right of this figure is an eight petalled rosette, not in Rogers (Rogers 1974), nor the normal rosette used by Cinnamus ii; although the decoration is not crisp, there is a high gloss finish typical of the bowls of this producer. Fig. 20.3

• Lining Hole 16

Context 8507, F1503
Base, SG La Graufesenque, Drag. 18/31R, 71g, BE: 0.15, Diam. 140mm, *c* AD 90-110.

• Lining Hole 17

Context 9000
Rim, CG Lezoux, Drag. 31, 7g, RE: 0.08, Diam. 180mm, *c* AD 150-200; abraded.

• Lining Hole 19

Context 10004
Body, SG La Graufesenque, form not identifiable, 1g, *c* AD 40-100.

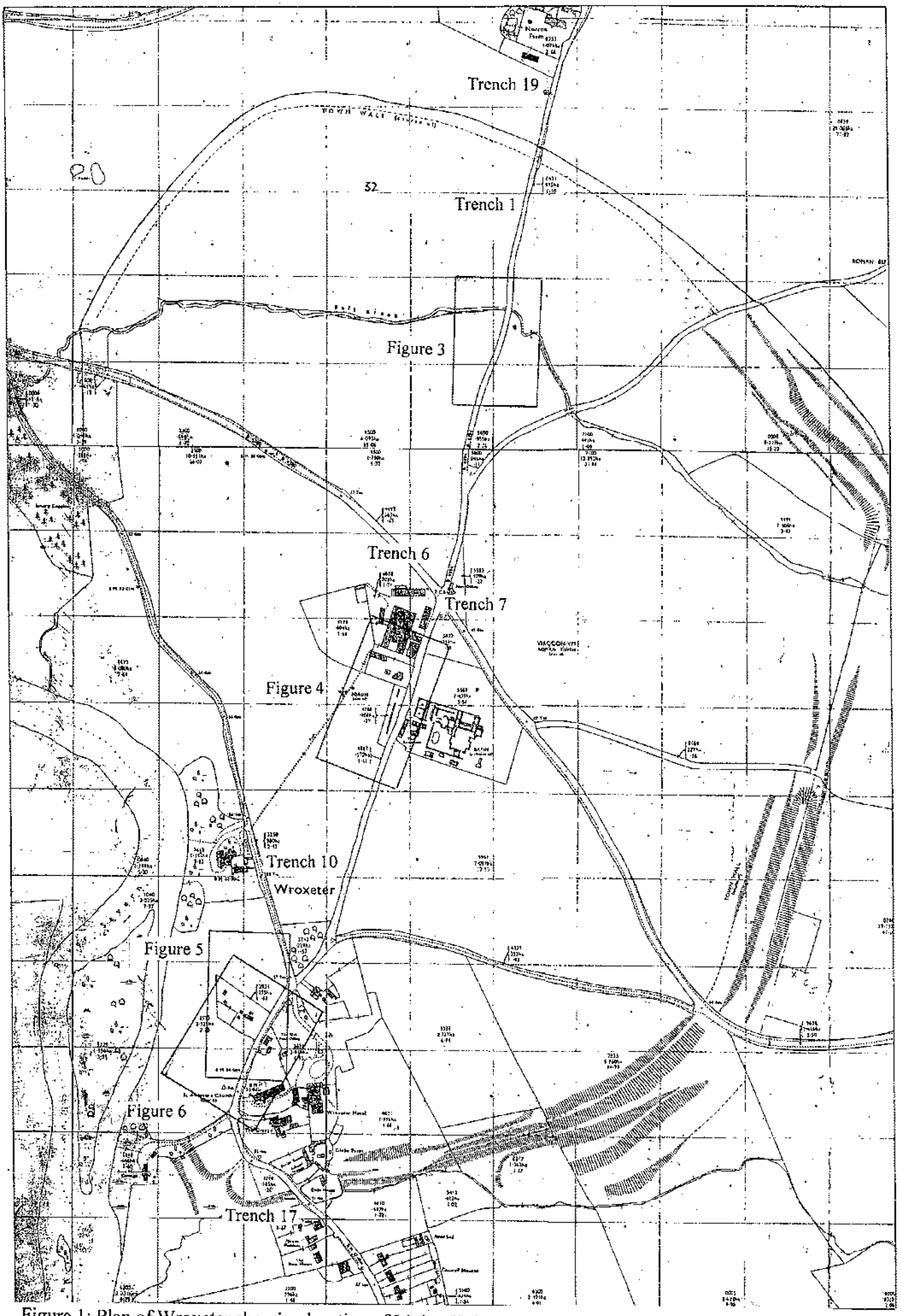


Figure 1: Plan of Wroxeter showing location of Lining Holes 1, 6, 7, 10, 17 & 19 and Figures 3-6

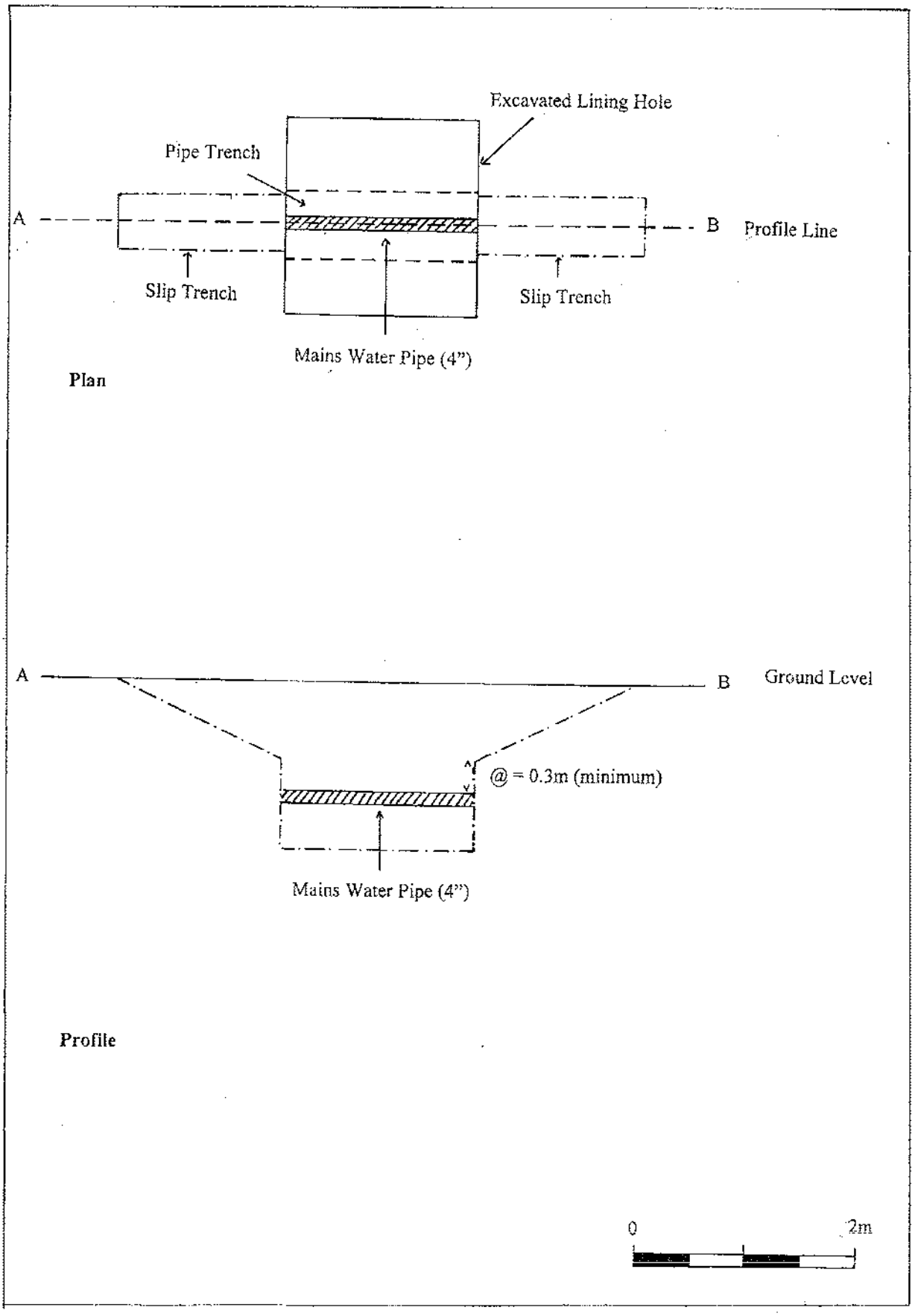


Figure 2: Wroxeter pipeline: plan and profile of typical lining hole

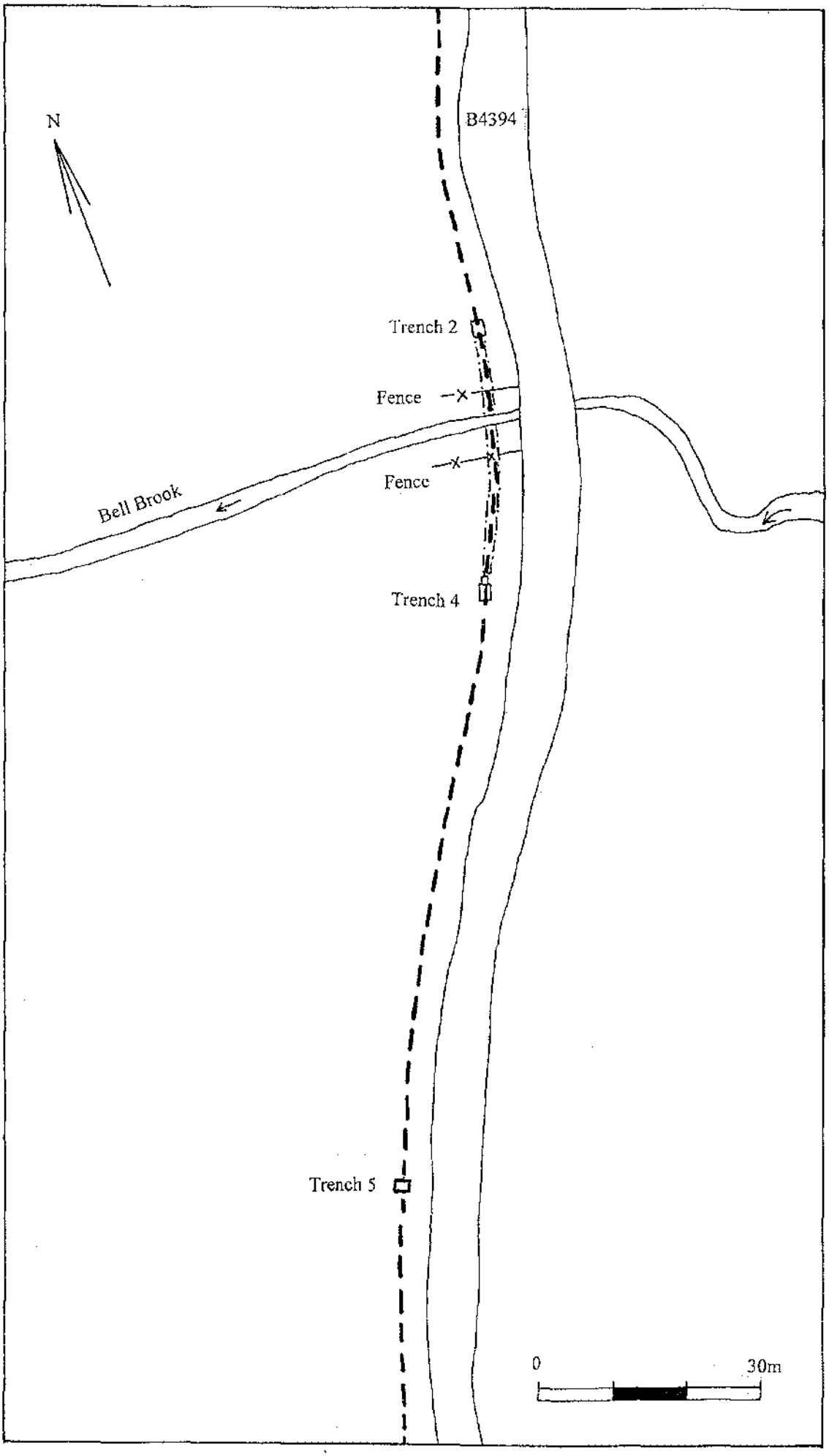


Figure 3: Location plan for Lining Holes 2-5

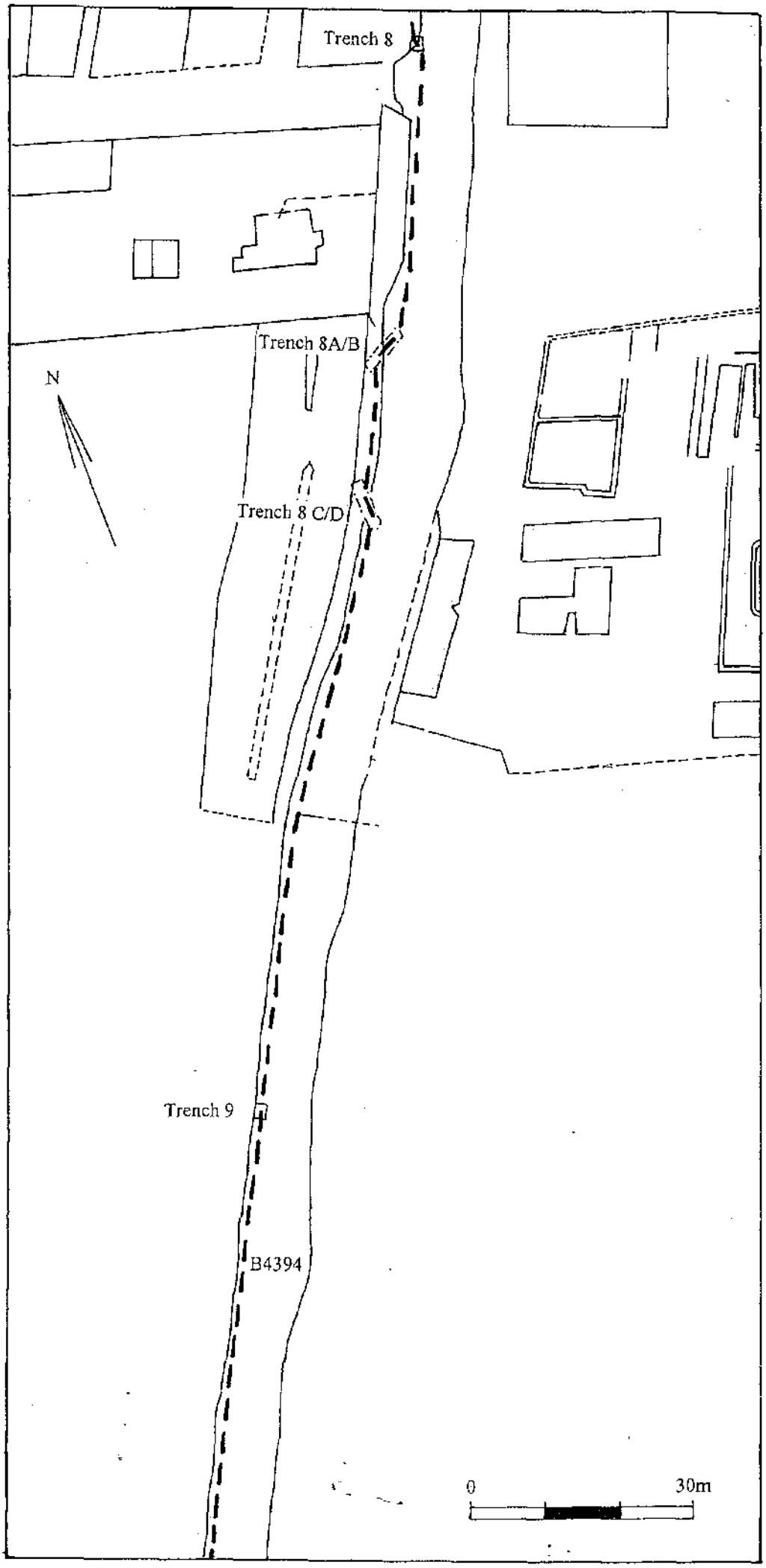


Figure 4: Location plan for Lining Holes 8-9

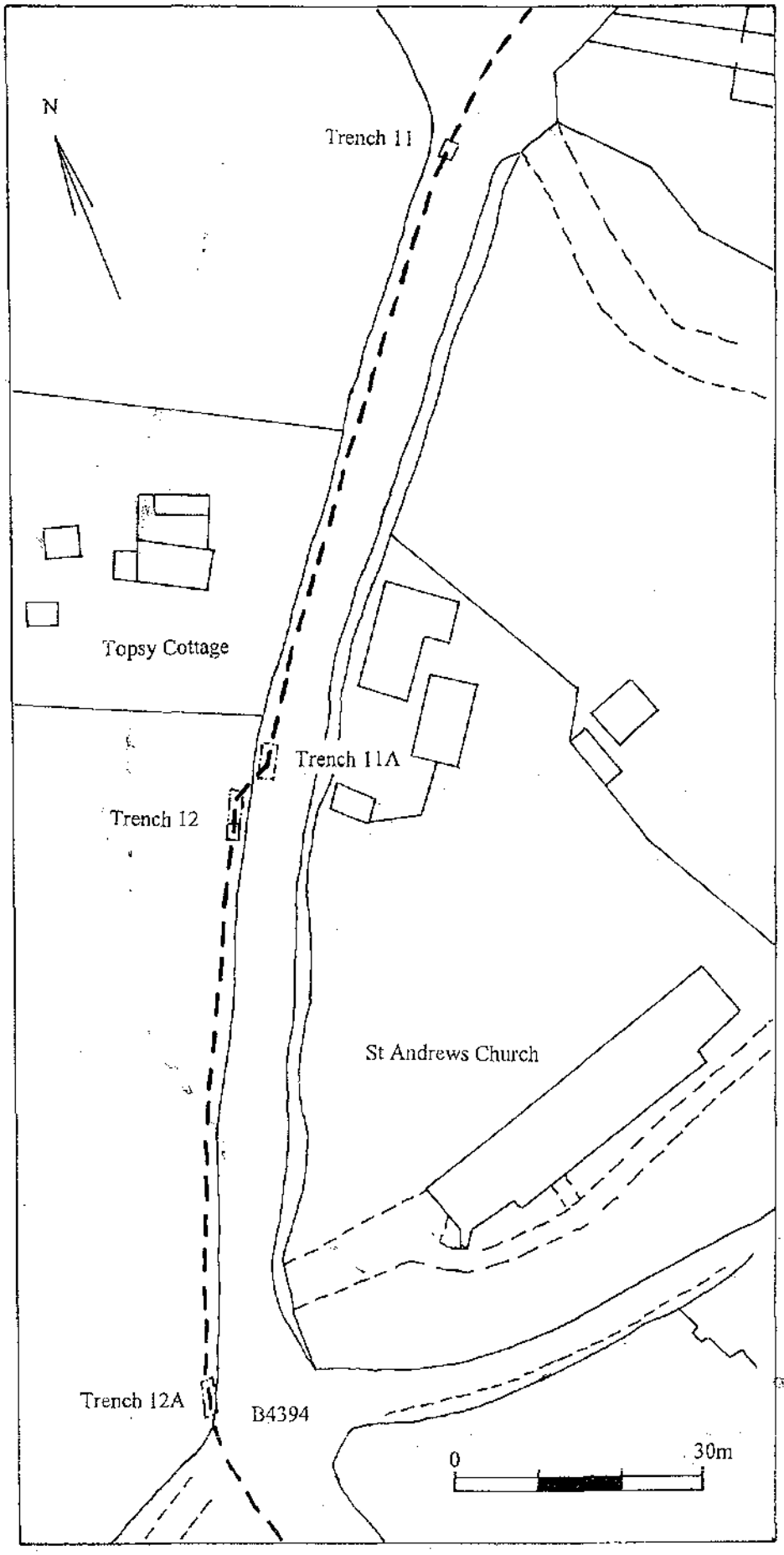


Figure 5: Location plan for Lining Holes 11-12A

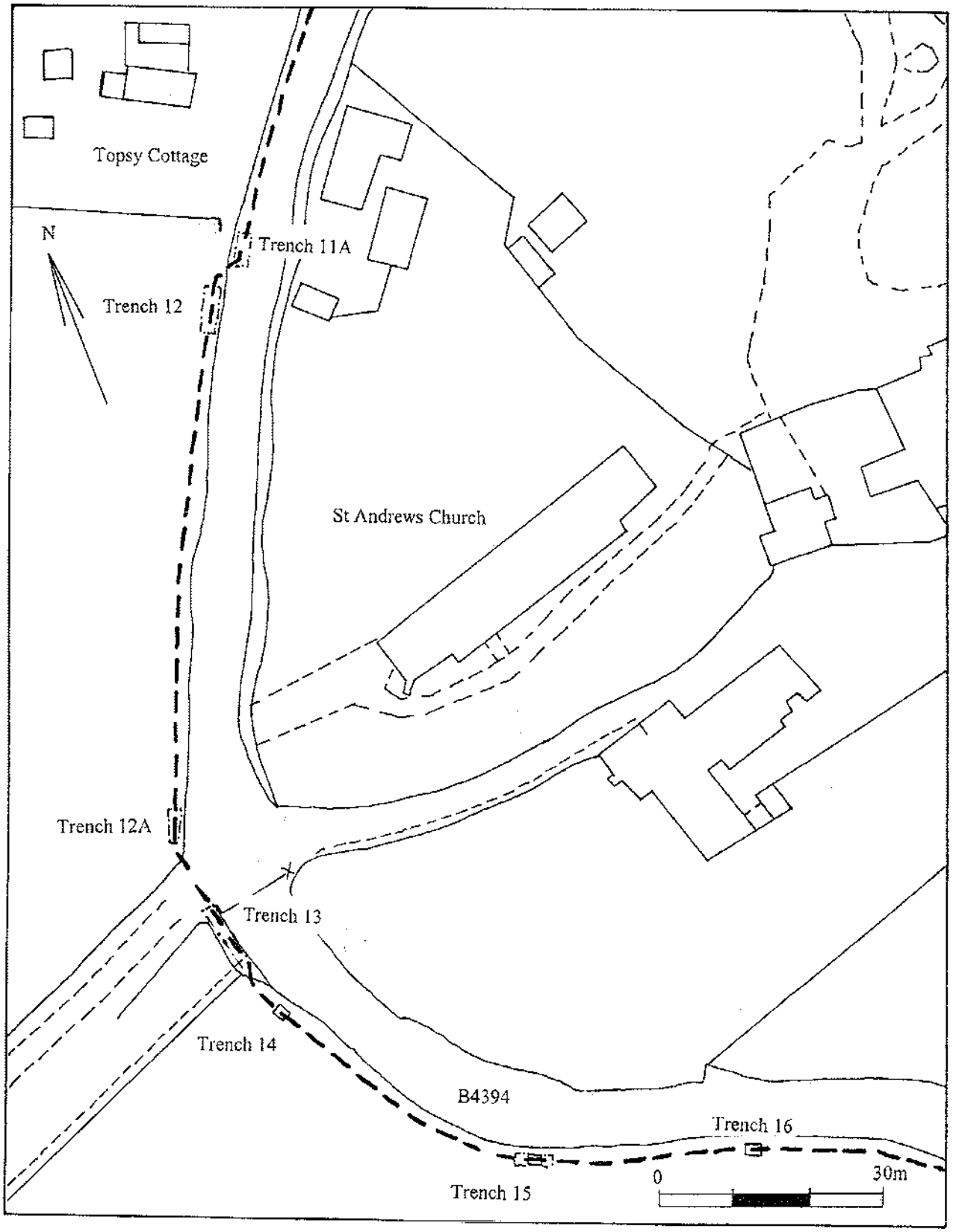


Figure 6: Location plan for Lining Holes 11A-16

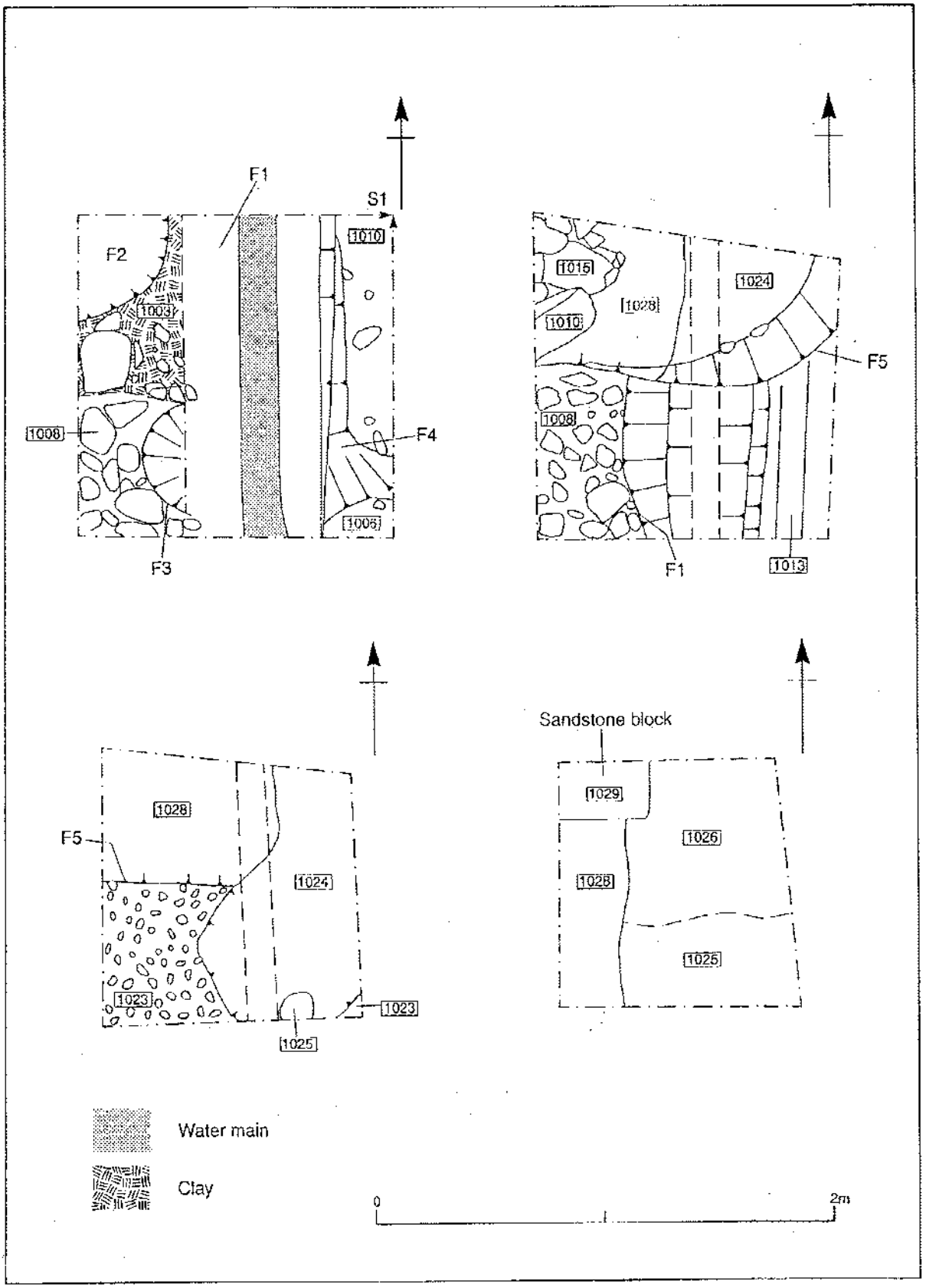


Figure 7: Wroxeter pipeline, Lining Hole 1, plans

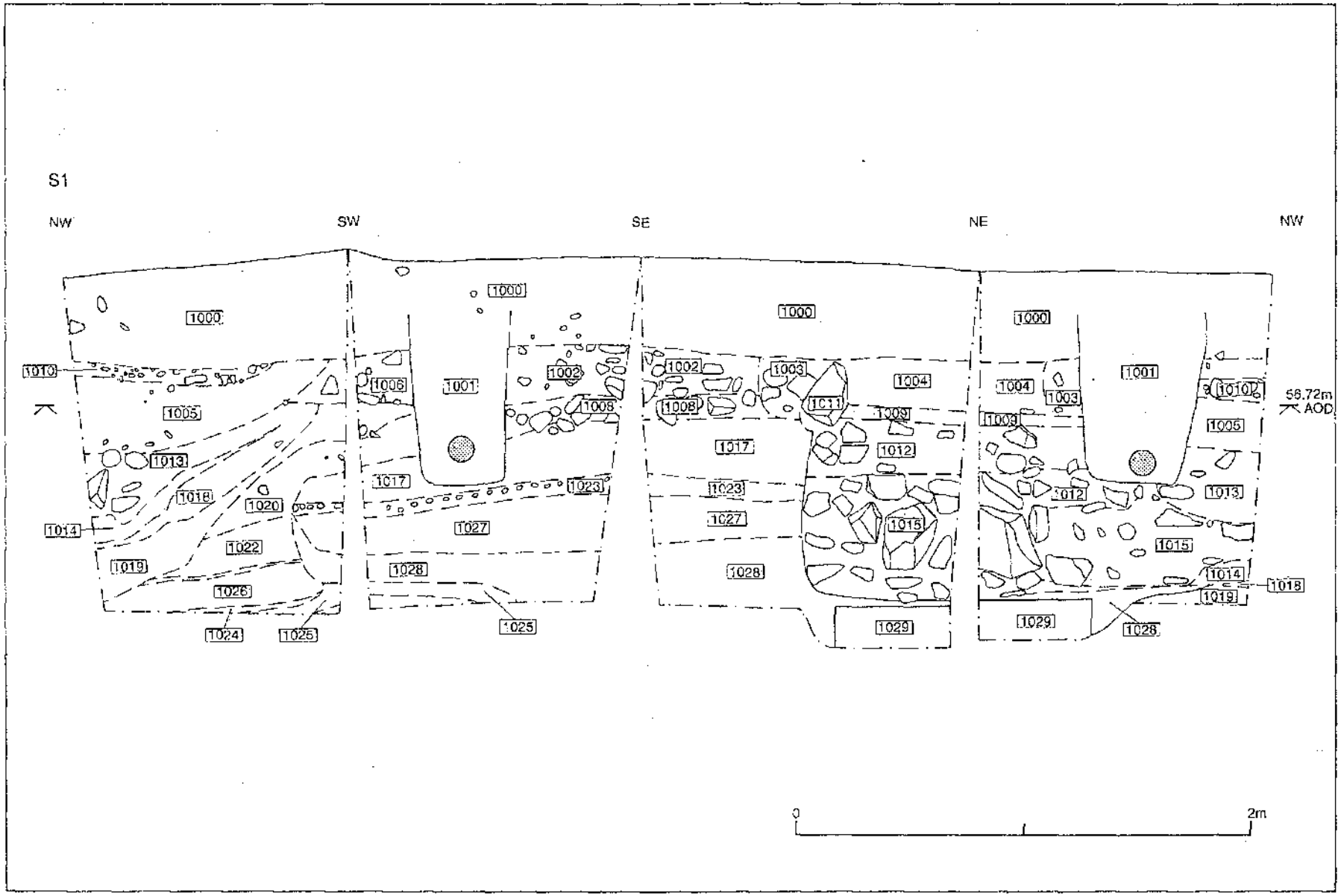


Figure 8: Wroxeter pipeline, Lining Hole 1, sections

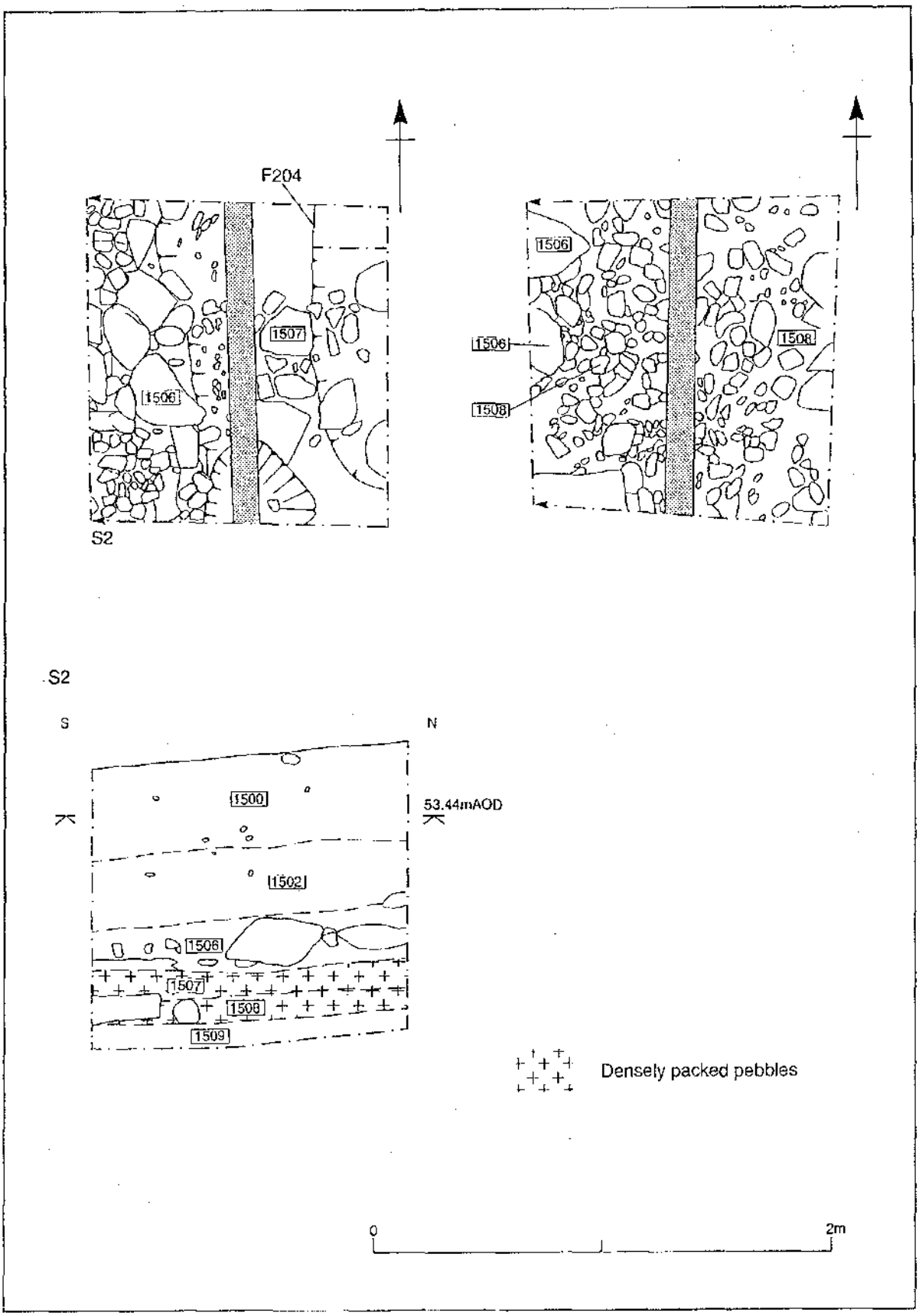


Figure 9: Wroxeter pipeline, Lining Hole 2, plans and section

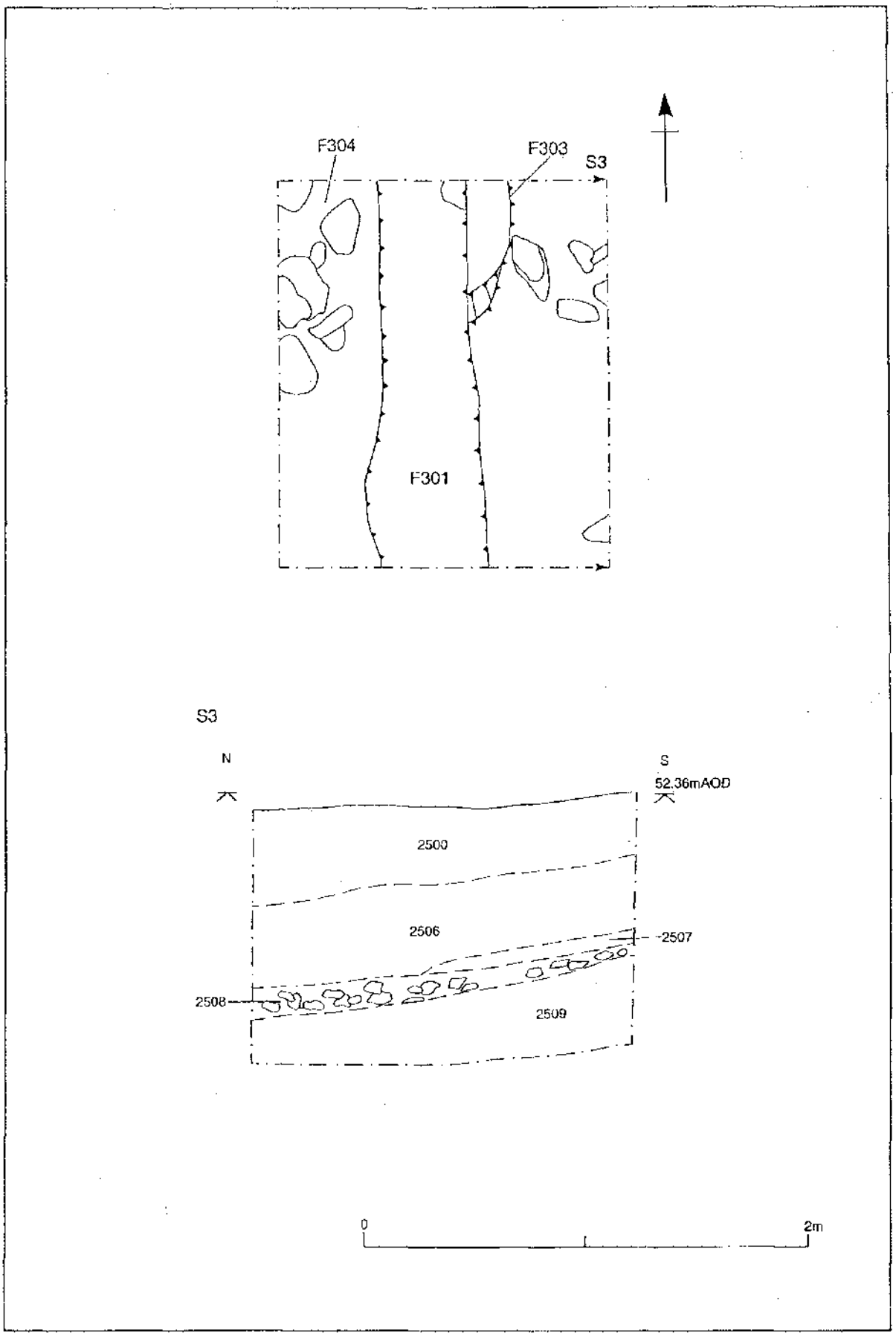


Figure 10: Wroxeter pipeline, Lining Hole 4, plan and section

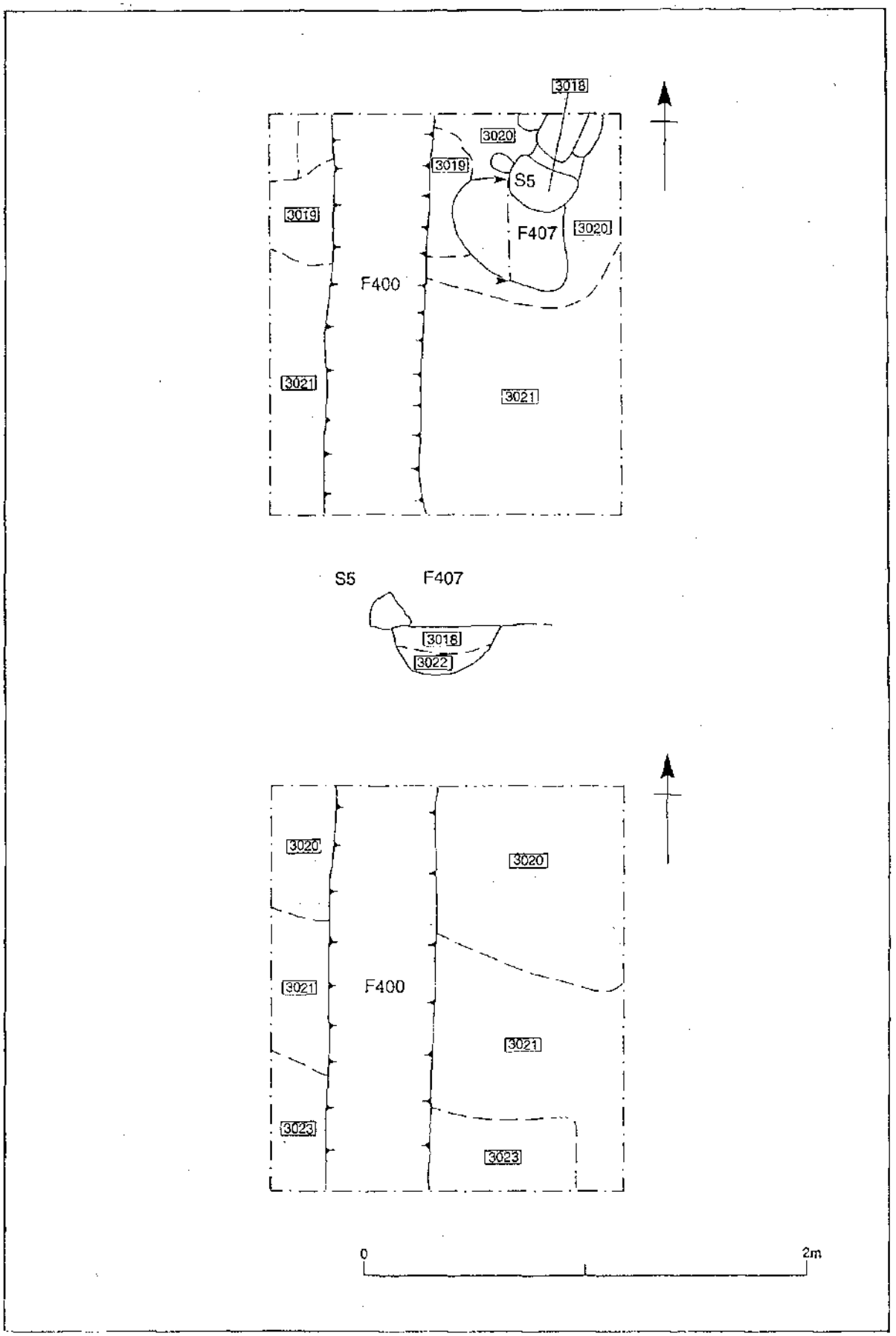


Figure 11: Wroxeter pipeline, Lining Hole 5, plans

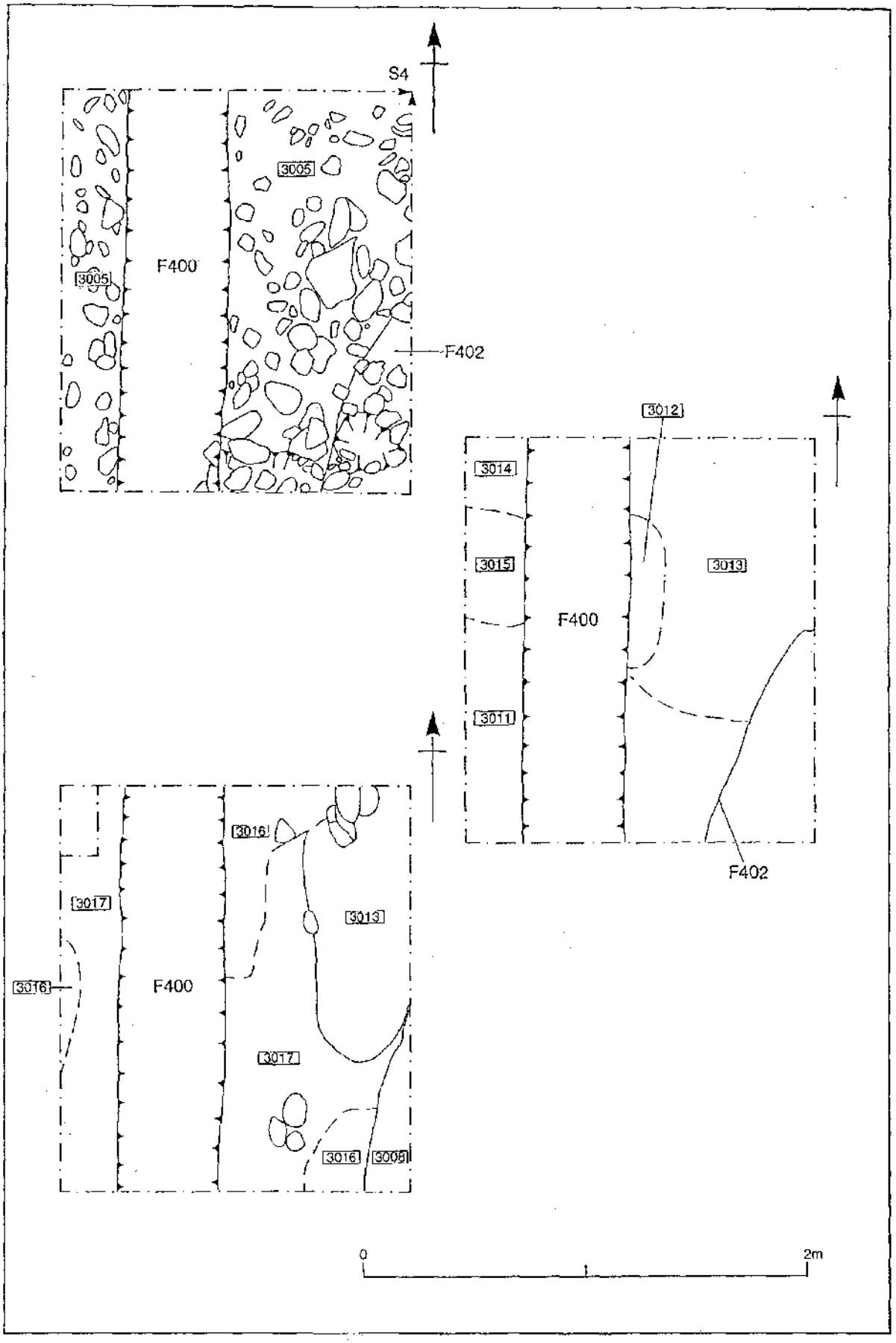


Figure 12: Wroxeter pipeline, Lining Hole 5, plans

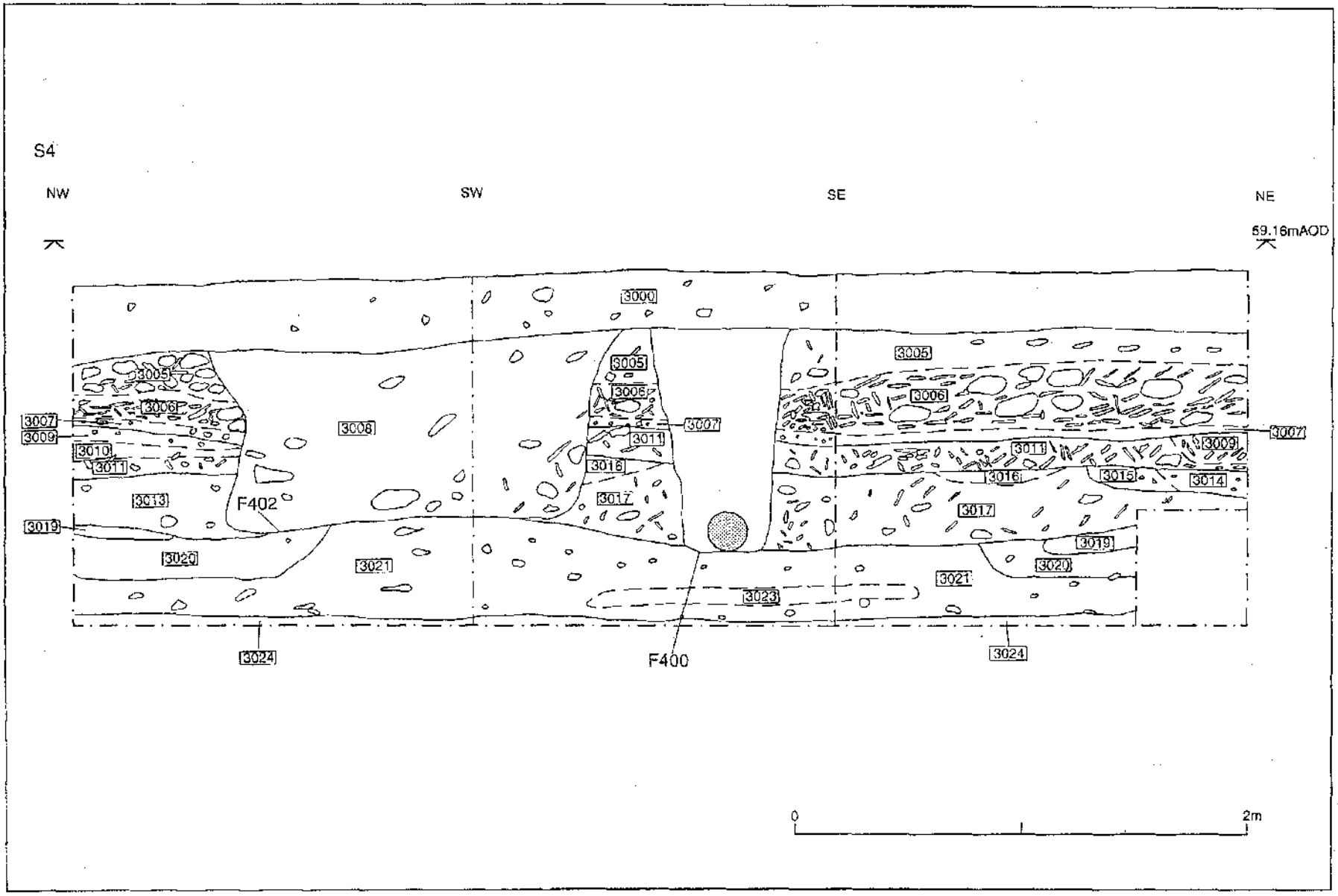


Figure 13: Wroxeter pipeline, Lining Hole 5, sections

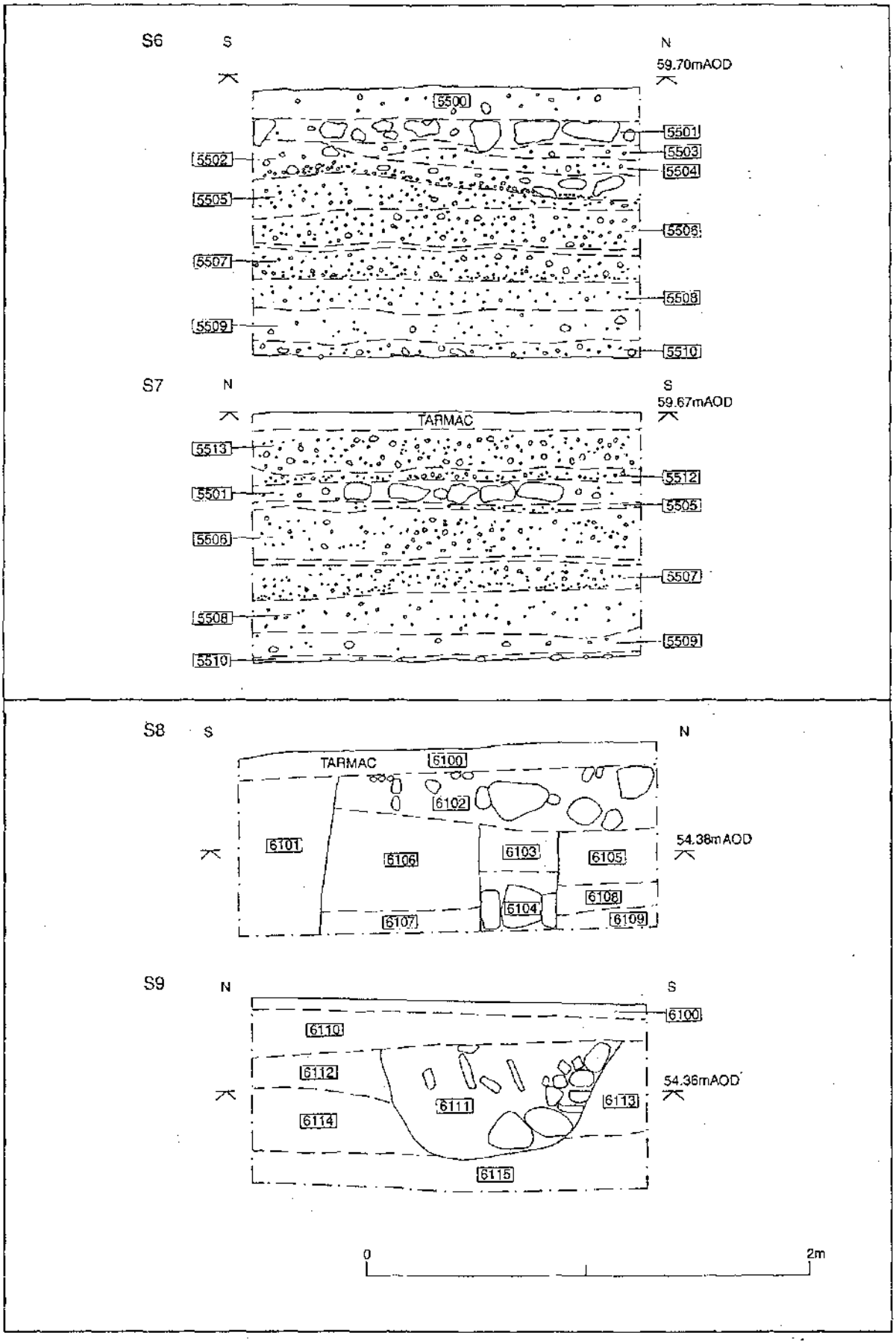


Figure 14: Wroxeter pipeline, a) Lining Hole 10, sections b) Lining Hole 11A, sections

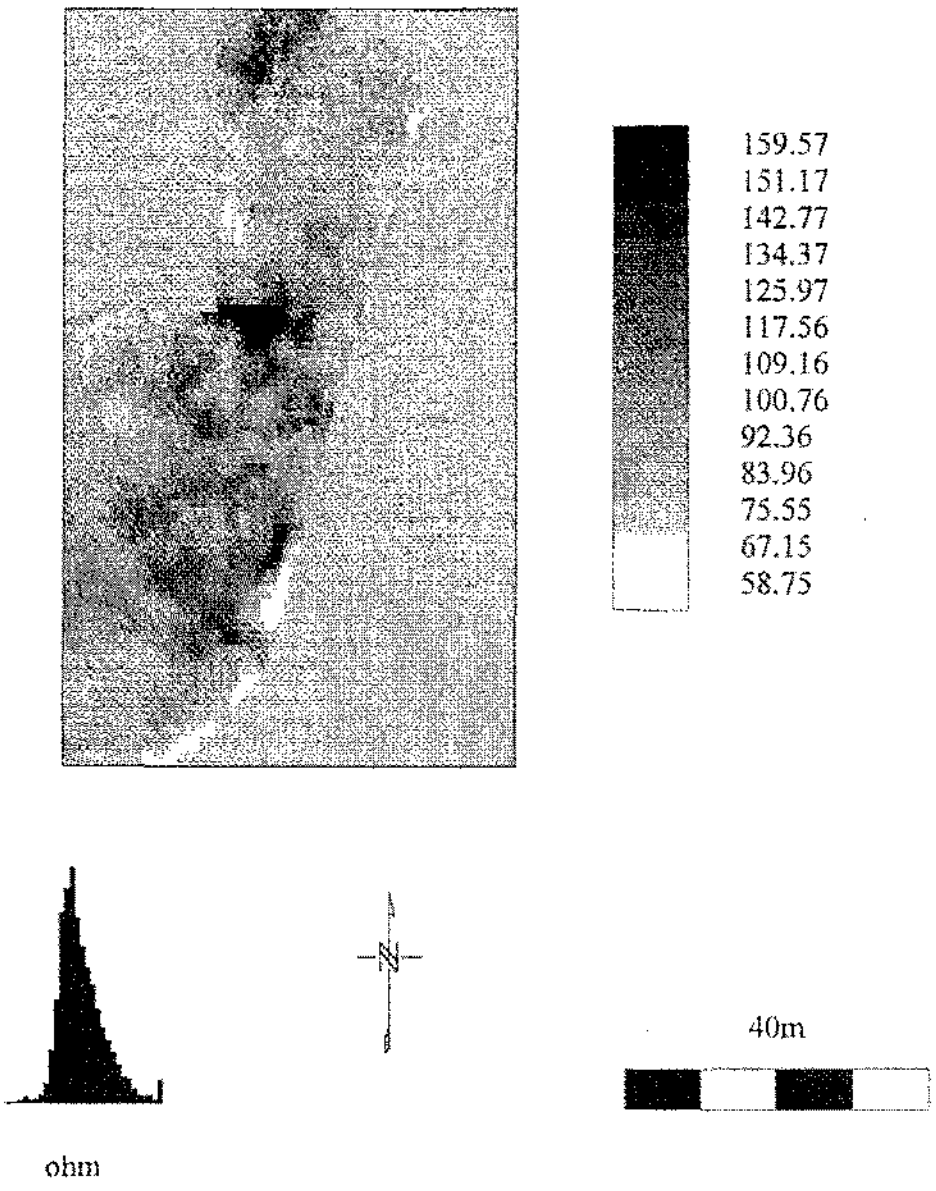


Figure 15: Wroxeter pipeline: resistivity survey around lining hole 12

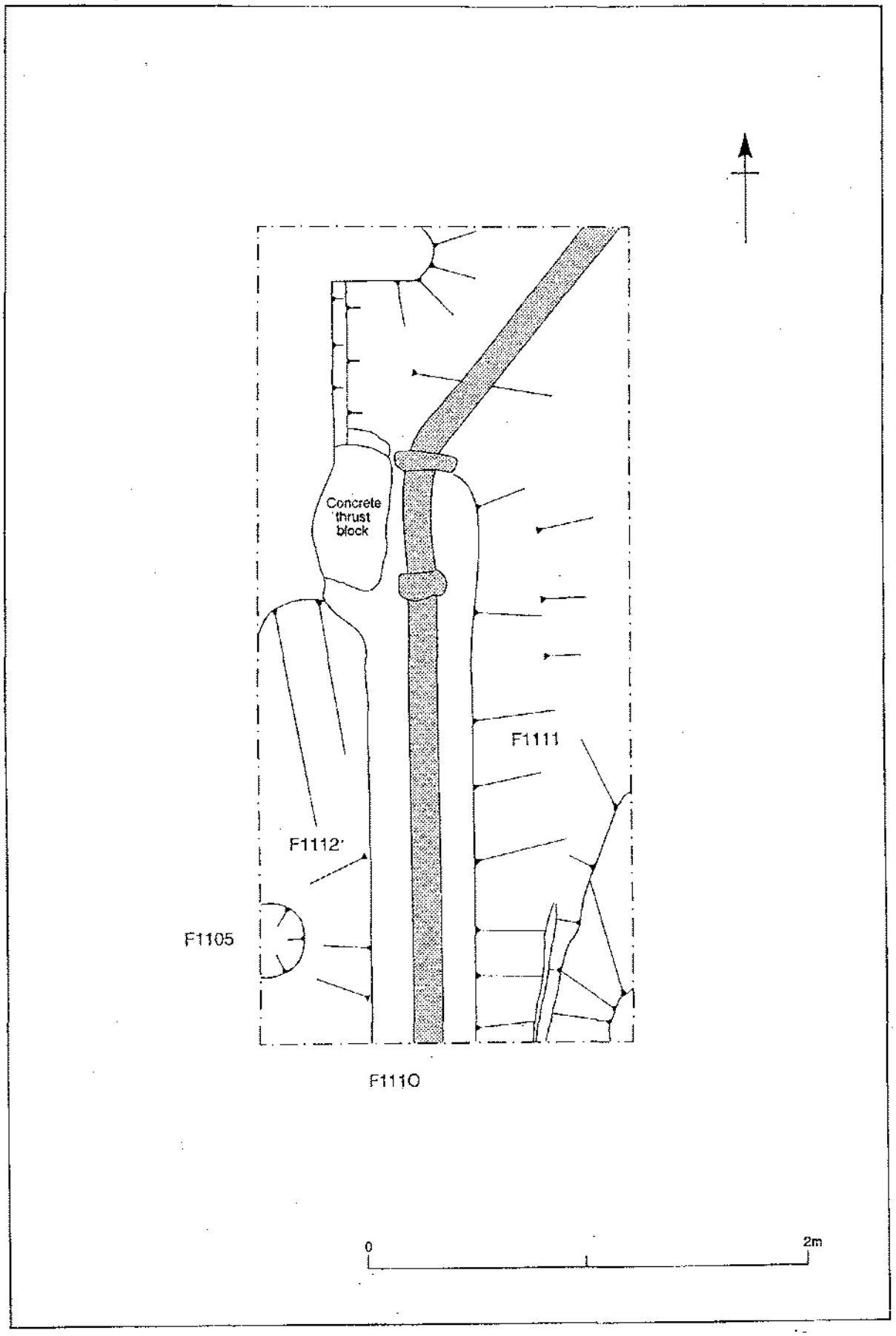


Figure 16: Wroxeter pipeline, Lining Hole 12, Phase X1 plan

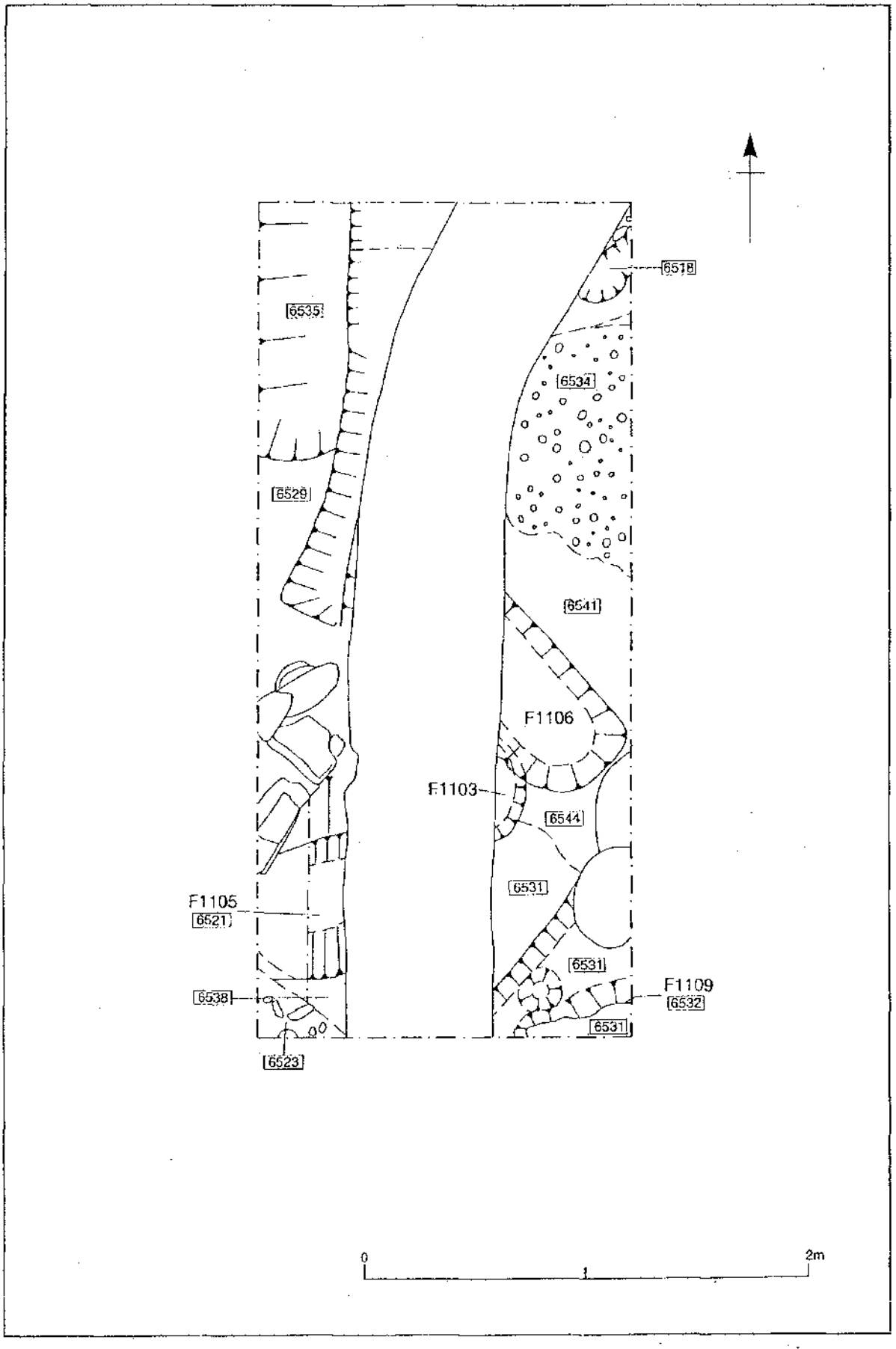


Figure 17: Wroxeter pipeline, Lining Hole 12, Phase X2 plan

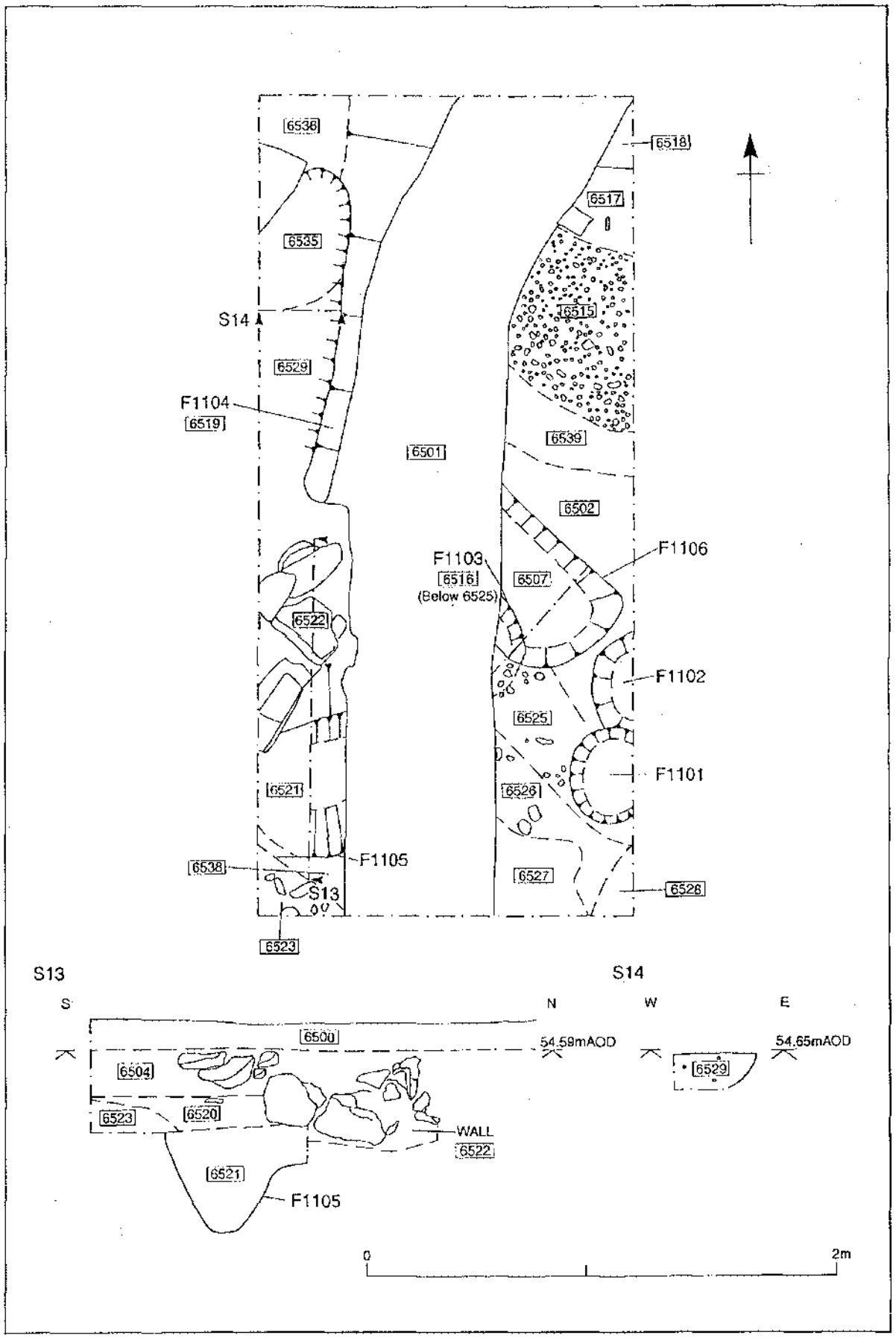


Figure 18: Wroxeter pipeline, Lining Hole 12, Phase Y1 plan

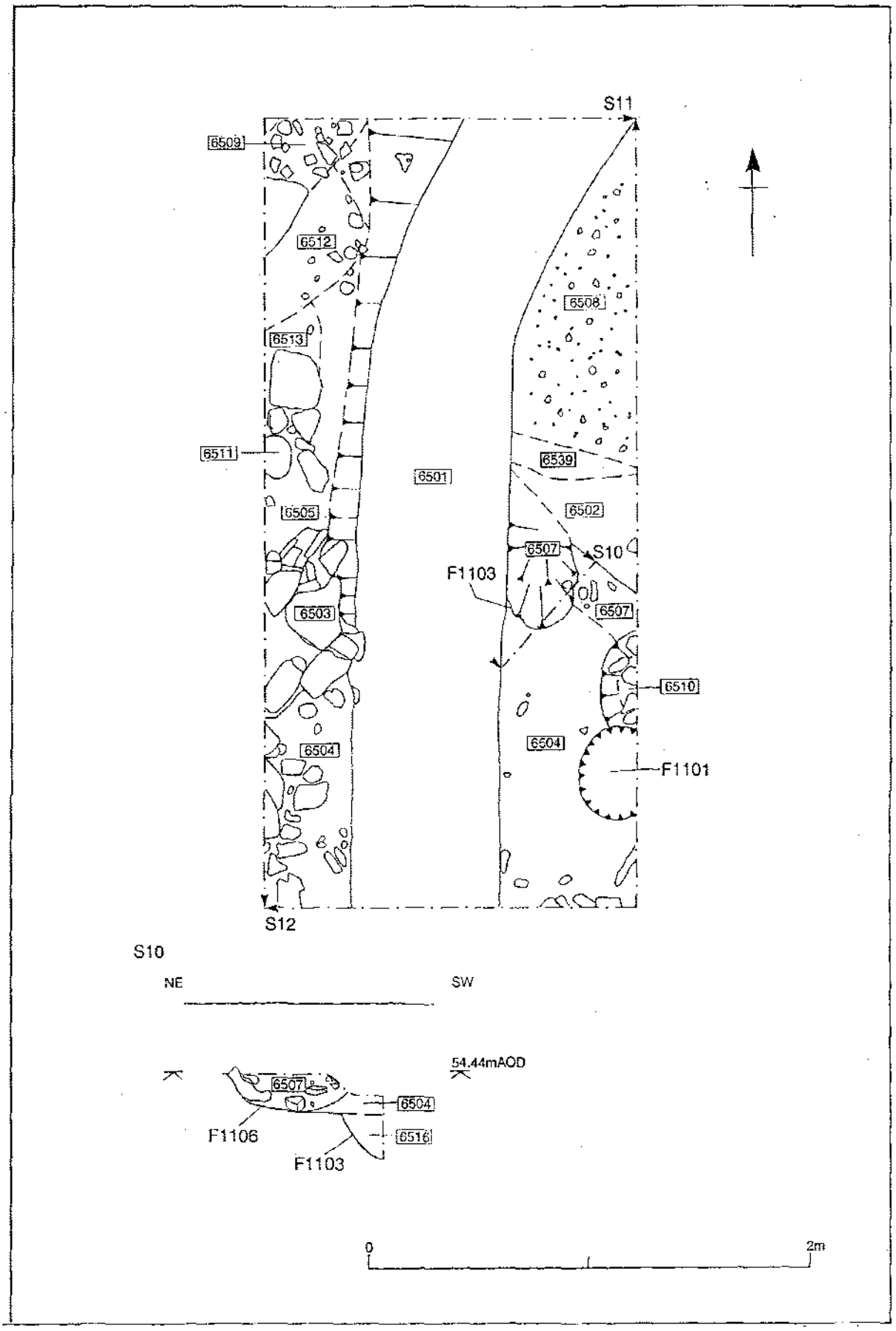


Figure 19: Wroxeter pipeline, Lining Hole 12, Phase Y2 plan

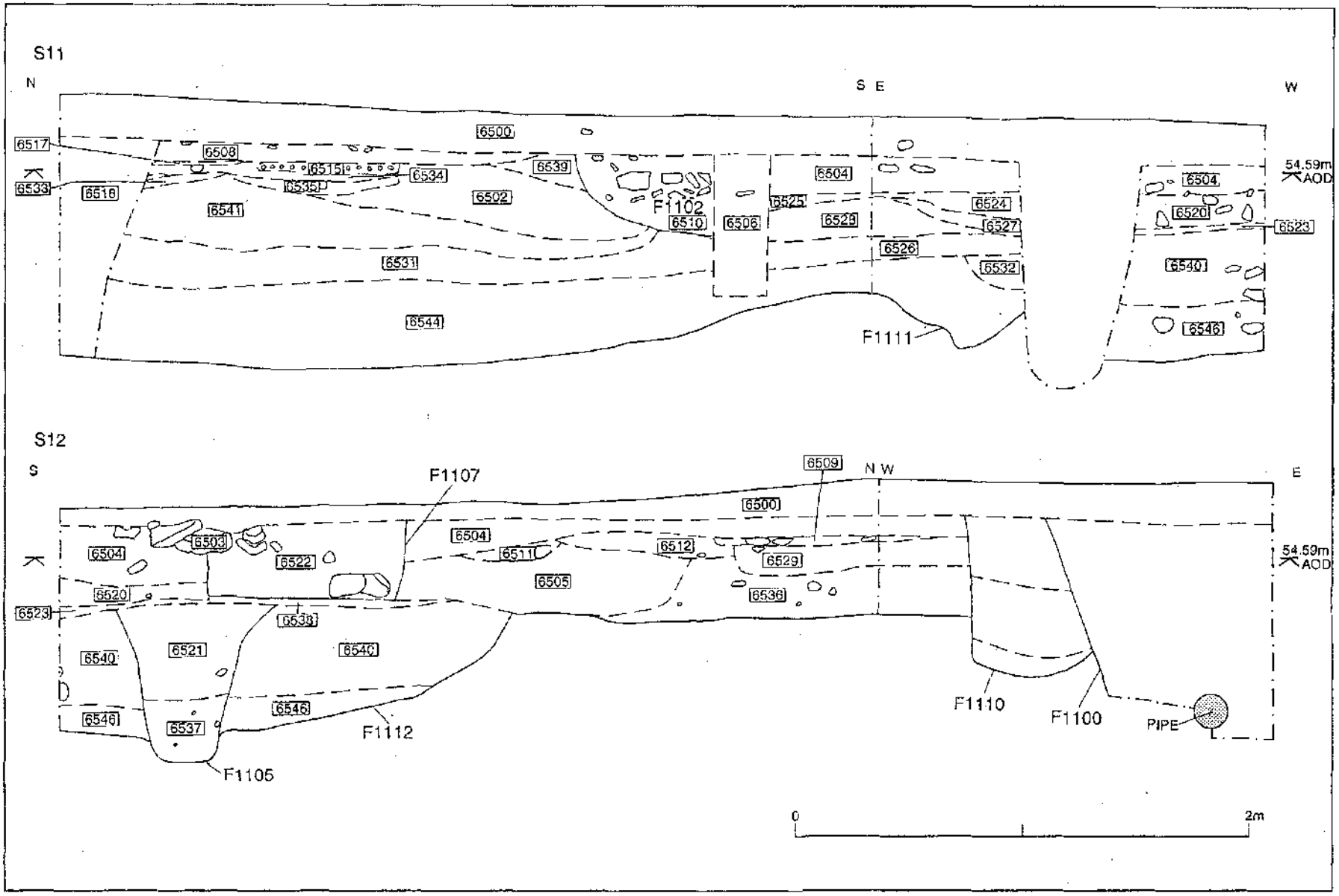


Figure 20: Wroxeter pipeline, Lining Hole 12, sections

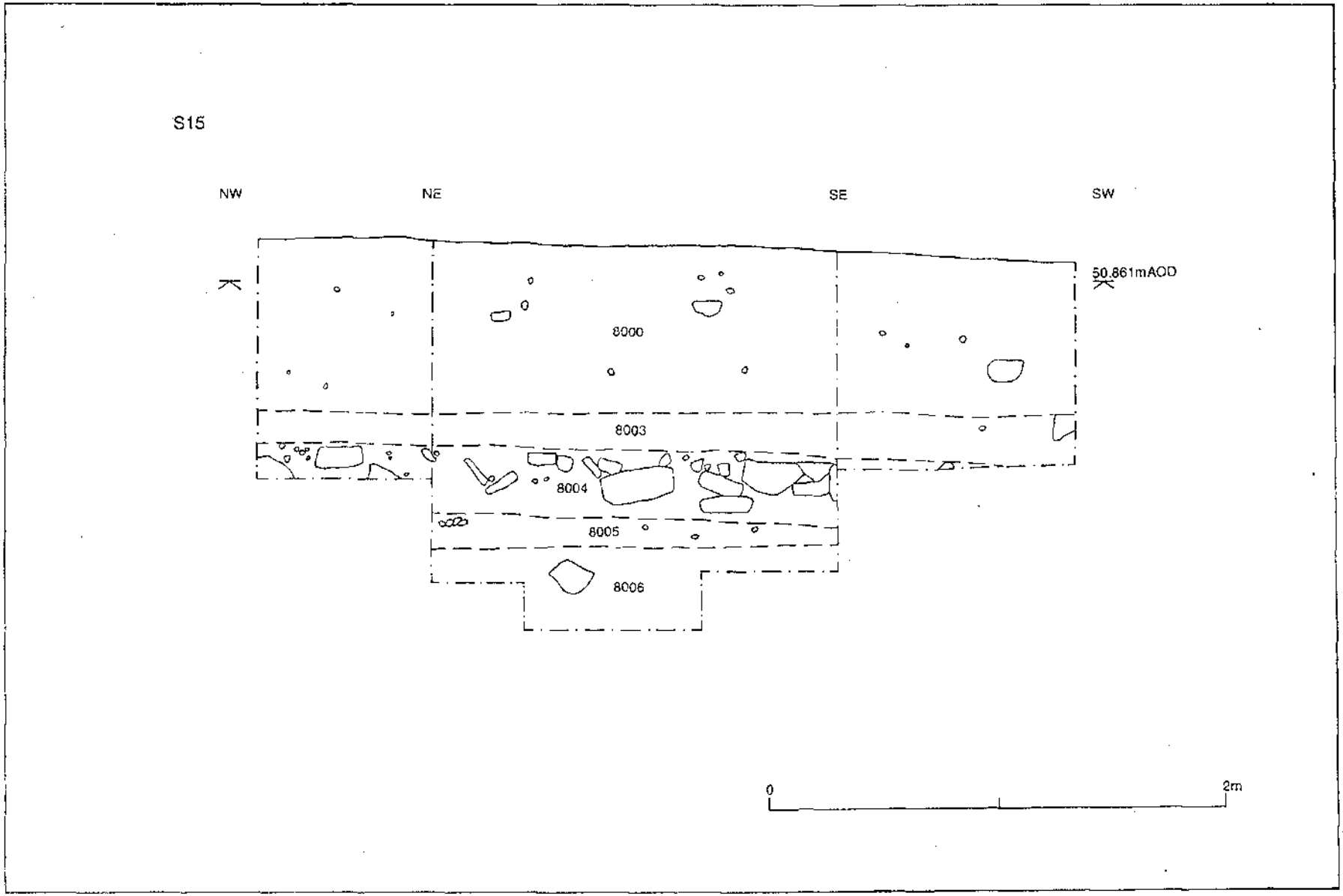


Figure 21: Wroxeter pipeline, Lining Hole 15, section

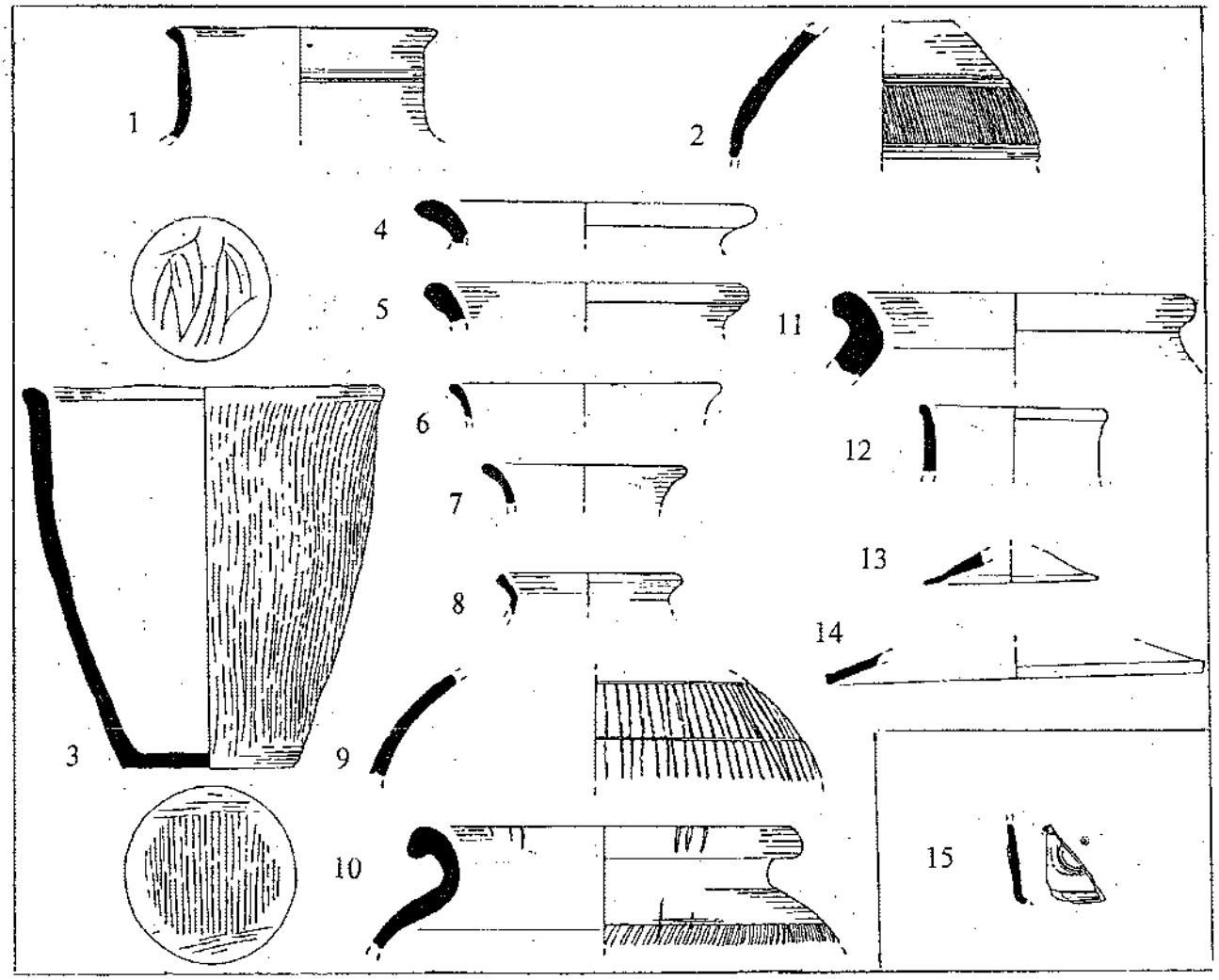


Figure 22: The Roman Pottery from the Wroxeter Pipeline Lining Holes 5 and 12, Scale 1:4

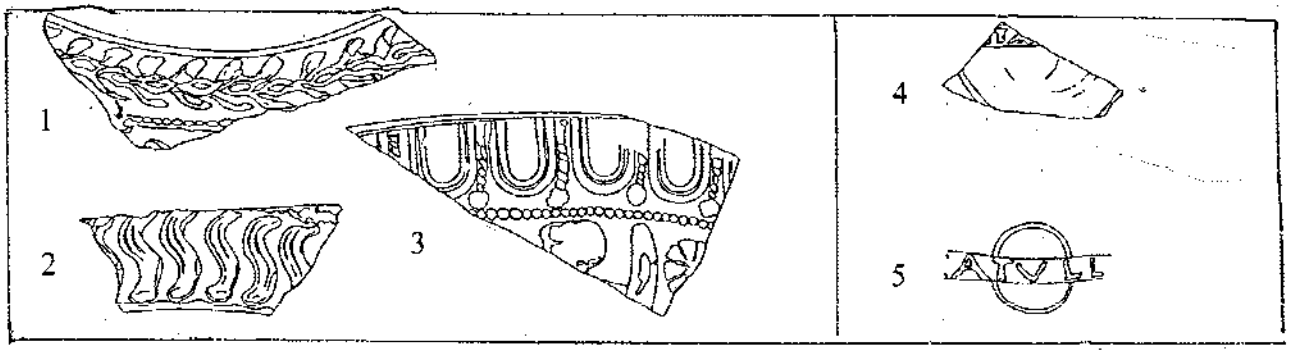
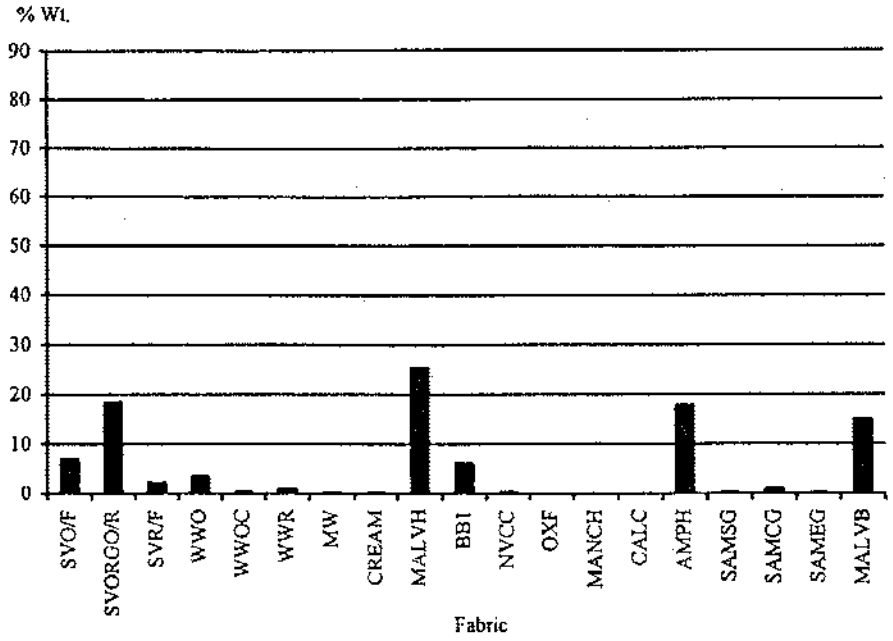


Figure 23: The samian: 1-3 Decorated samian, 4-5 Samian stamps, Scale 1:1

a) Assemblage composition by Fabric (% Wt.)



b) Assemblage composition by Vessel Class (% Rim EVE)

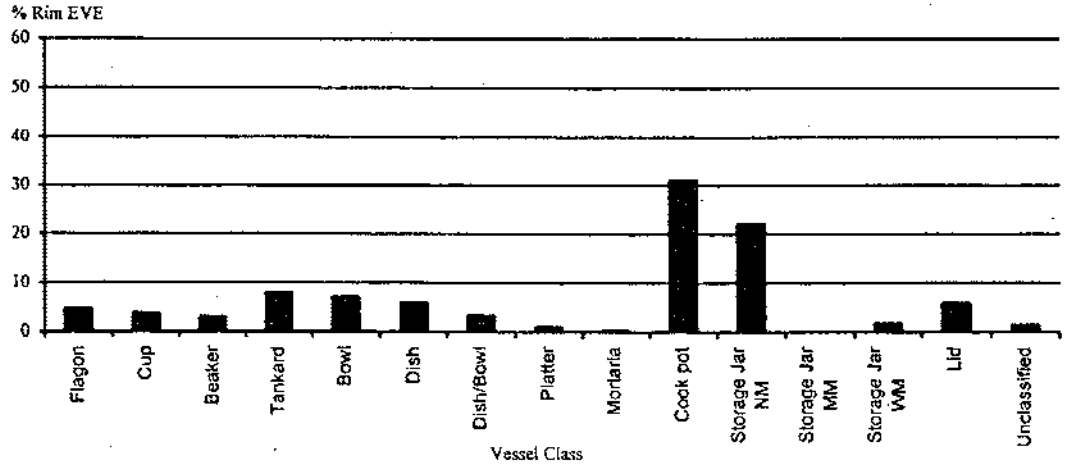


Figure 24: The Roman Pottery: Analysis of the Lining Hole 12 assemblage

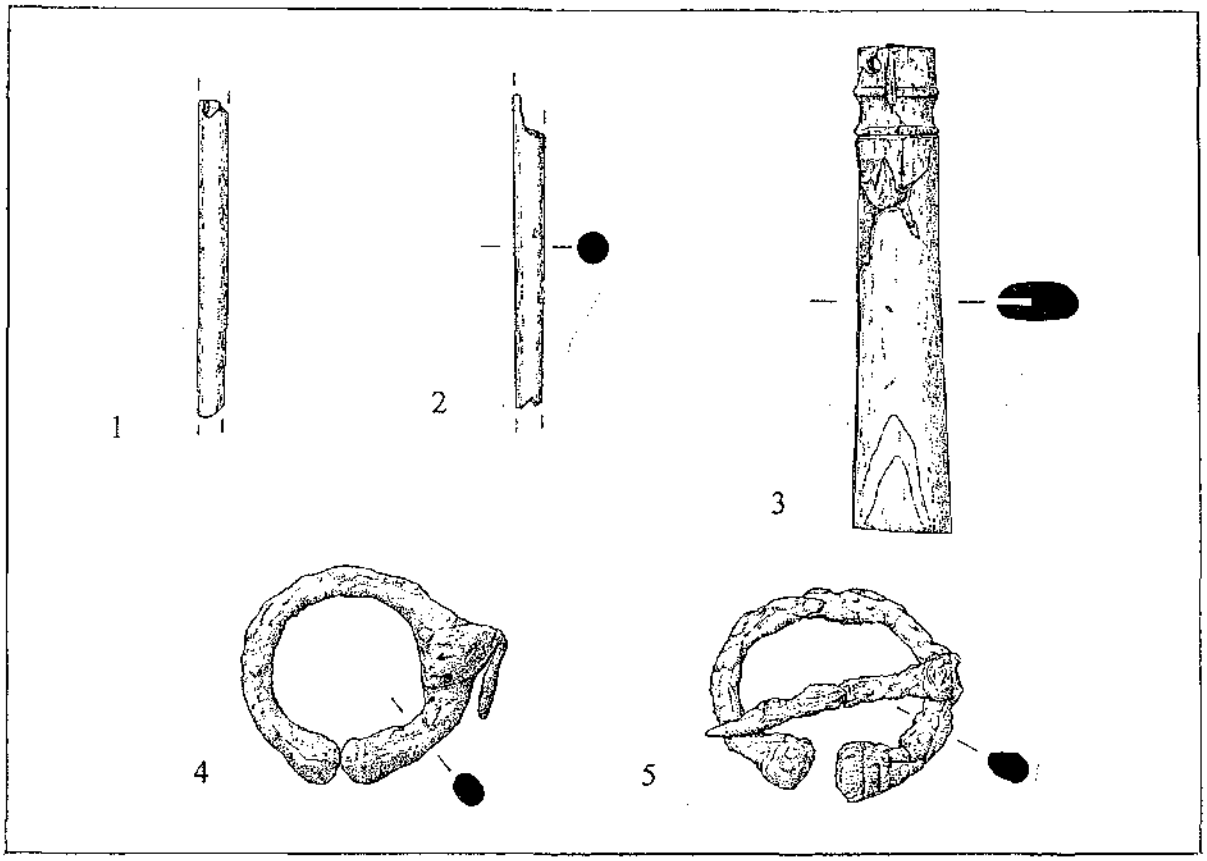


Figure 25: Bone and Copper alloy finds, Scale 1:1

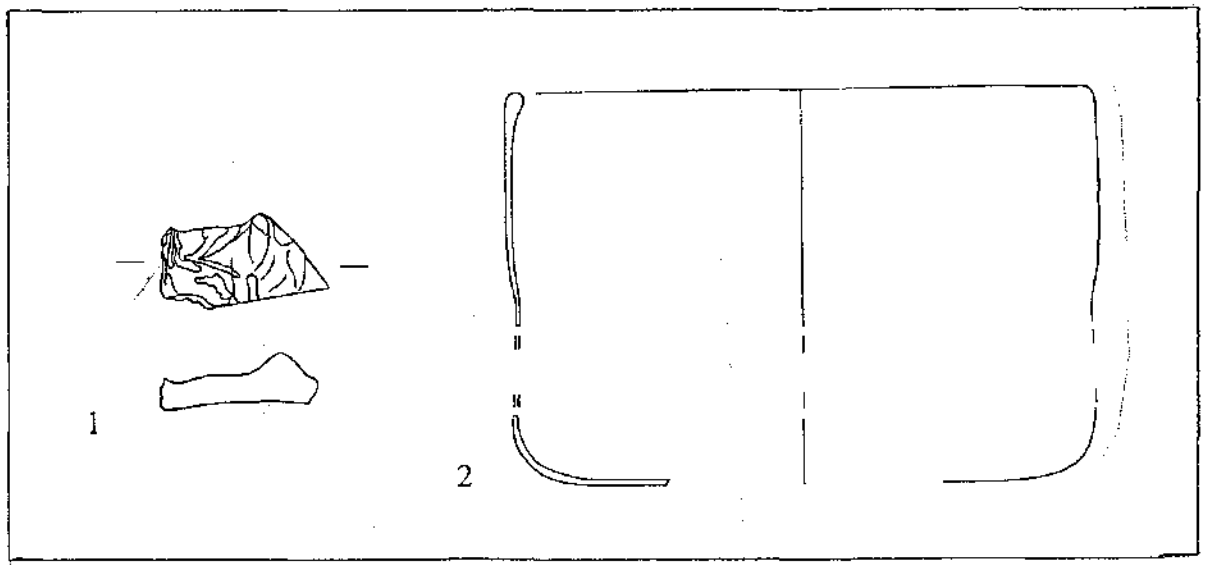


Figure 26: Finds of Roman Glass from Wroxeter Pipeline (WST 99), Scale 1:1